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BRICK *and* CLAY RECORD

Established 1892. Now in its thirtieth year.

Copyright 1922
By Industrial Publications, Inc.

Entered as Second Class Matter January 2, 1911, at
the Post Office, at Chicago, Ill., Under
the Act of March 3, 1879.

Terms of Subscription
One Year—(26 Numbers)
United States.....\$3.00 Foreign\$4.00
Single Copies.....25c

Member of Associated Business Papers, Inc.
Member Audit Bureau of Circulations

Published Every Other
Tuesday by

Industrial Publications, Inc.

Telephone: Harrison 9462

407 S. Dearborn St. Chicago

Branch Offices
New York Cleveland Kansas City

Address all communications to home office

Chicago, July 11, 1922

Vol. 61 No. 1

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Standards of Practice for Business Publications

The publisher of a business paper should dedicate his best efforts to the cause of Business and Social Service, and to this end should pledge himself: 1. To consider, first, the interests of the subscriber. 2. To subscribe to and work for truth and honesty in all departments. 3. To eliminate, in so far as possible, his personal opinions from his news columns, but to be a leader of thought in his editorial columns, and to make his criticisms constructive. 4. To refuse to publish "puffs," free reading notices or paid "write-ups;" to keep his reading columns independent of advertising considerations, and to measure all news by this standard: "Is it real news?" 5. To

decline any advertisement which has a tendency to mislead or which does not conform to business integrity. 6. To solicit subscriptions and advertising solely upon the merits of the publication. 7. To supply advertisers with full information regarding character and extent of circulation, including detailed circulation statements subject to proper and authentic verification. 8. To co-operate with all organizations and individuals engaged in creative advertising work. 9. To avoid unfair competition. 10. To determine what is the highest and largest function of the field which he serves, and then to strive in every legitimate way to promote that function.

The EDITOR'S CORNER

Why Not Learn From Experience

RIGHT NOW a great many clay plants are paying from \$1 to \$2 and even more per ton of coal than was paid preceding the strike. Hence an establishment using 50 tons of coal daily is charging against the strike some \$50 to \$100 or more each day. Some plants have found it necessary to purchase coal from non-union fields at a much higher price for a month or more. In a month the increase runs into a few thousand dollars. If loss in time, quality of ware, and so forth, were included, the sum would even exceed this amount.

If the present coal strike were the only one to have caused such added expenses as the above, it would simply be classed as an unfortunate incident and never happen again. Instead, coal strikes, passed up with the hope that it would clear shortages, and so forth occur frequently, too frequently in fact—yet the situation is given very little more concern than if coal strikes, car shortages, and so forth, happened but once in a decade.

Mine operators will not store coal. It is claimed that this is impractical. We wonder if this proposition has been as fully investigated as it deserves. However, if it is impractical for the miners to store coal, then the next best thing is for the consumers to store coal.

The present strike has been the last straw for some business concerns, and work on some plants has already begun for an under water coal storage system. This idea would be one well worth consideration by the clay manufacturers. Overhead bins made waterproof might be constructed in several sections and the coal stored under water. The water could be permitted to run out of a section a short time ahead of the period during which a particular bin of coal would be required for use.

The coal might fall by gravity into carts, tractors, or autos, and hauled away at a minimum of handling cost. The extra cost would only consist of a large

waterproof bin supported above ground. The same type of coal unloader now in use would be adaptable to this system.

The extra cost of such equipment, had it been constructed five years ago, would have saved its cost and returned a dividend during this interim.

Of course, these measures would not get at the fundamental problem in the coal situation. It should not be necessary to require facilities for storing coal at all. However, the situation in the coal industry is bad. There has been so much talk and little action about this situation that we begin to forsake all hopes for improvement, either thru Government regulation or other means.

George Otis Smith, director of the United States Geological Survey, recently stated: "Mine owners have too long treated the coal business as a private privilege and too long have the labor leaders with no less monopolistic attitude, obstructed every move for underground efficiency and economy. The people's coal costs too much because of the mistaken idea that mine owner and mine worker can continue to fight over contracts and rules. Cheaper coal and larger earnings will come when engineering is emphasized more and bargaining less."

Director Smith has probably stated the situation well, but to await all these changes is to live in hopes that may not materialize. The safest thing to do is to prepare for continued bad situations. Past experience with the coal problem seems to make this the most judicious expediency. Store your coal.



An Indicator for Determining Production

OF THE FACTORS that cause demoralization of material markets, overproduction or a large stock of unsold supplies is perhaps the greatest. A stock pile represents a great lump of money. It is more complicated than money, however, because its value fluctuates.

There are very few men who can han-

dle a large supply of stocks judiciously. In the hands of a great many persons, an overproduction is almost certain to wreak havoc with market conditions. Therefore, if production could be made to more nearly conform to consumption, many of the difficulties of the manufacturer would be reduced.

Ordinarily this is difficult to accomplish without getting into a delicate situation with Government departments. However, those industries manufacturing building supplies have available a barometer that may be used as a measure of demand. The proposition may have to be given intensive investigation and development before it is acceptable, but the possibilities are promising.

Figures published by a building contractor's organization, showing an average of eleven years of building permits, and figures of shipments of cement and sand, stone and gravel for one year, show that the peak of the shipments of these commodities followed the peak of the building permits issued by about three to four months.

According to this, if the manufacturer of building materials sees that the volume of permits issued in May and June is large, he can figure on good business in August and September. Moreover, if he will take the time and effort to go into statistics more thoroughly, the manufacturer can even estimate the share of this business that he might be expected to receive. This also applies to the dealer.

A comparison of the volume of business done in proportion to the building permits issued for each year over a period of years would result in a formula that in many cases would be a splendid tool to guide plant production.

These thoughts deserve the earnest consideration of building material manufacturers and dealers. A department in the various national clay products associations, which embrace manufacturers of building materials, should be instituted to give this subject complete investigation and prepare reports on the building situation.

Are you in need of kiln volume?—Do you need to save every pound of coal possible?—Then be sure to read next issue.

Opinions from the men that use them will be given about a one man excavator.

It will interest you to know about the experiment being conducted on 63 different types of pavements.

Wheat is one of the biggest problems in merchandising building products outside of advertising and actual selling?

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A. C. S. Will Visit Canada and Falls

Plan One Week of Plant Inspection and Pleasure in Canada and New York—All Types of Plants on Program—Canadians to Be Hosts

ROCHESTER, Montreal, Ottawa, Kingston, Toronto, Hamilton, Niagara Falls, Buffalo,—this is the formidable list of places to be visited on the program of the American Ceramic Society's summer meeting. The trip this year will take up an entire week, starting Sunday, August 13, and continuing thru to August 19. Plants to be visited offer something of interest to every branch of the society, and include such establishments as a feldspar mill, an enamel plant, glass plant, floor and wall tile plant, brick plant, hollow ware plant, electrical porcelain and abrasive plant, and the famous Canadian feldspar mines at Verona.

From the point of view of a pleasure trip, this year's excursion will without question banish dull care, business worries, and other bugbears of the tired business man. Starting from Rochester, the party will take the wonderful daylight trip from Thousand Islands to Montreal. All the beauty and grandeur of the St. Lawrence River will be in evidence, and this trip thru the famous rapids will be a memorable one in the minds of all who take it.

On the last day, Saturday, the party will wind up at Niagara Falls, whose scenic beauty needs no description. Those of the A. C. S. who took the trip to the Falls in 1919 will have a



Magnificent Niagara, Which Will Be Only One of the American Ceramic Society Summer Meeting's Attractions.

realization of the pleasure that is in store for those who make the trip this year.

Let the Committee Know

The committee in charge of the trip consists of the following: Millard F. Gibson, chairman, Interlocking Tile Co., 32

Toronto St., Toronto, Can.; N. B. Davis, O'Brien & Fowler, Ottawa; L. H. Cole, Department of Mines, Ottawa; G. Percy Cole, Dominion Glass Co., Montreal; H. F. Dingleline, National Fire Proofing Co., Hamilton; R. F. Segsworth, Feldspar's, Ltd., Toronto; Everett Townsend, Frontenac Floor & Wall Tile Co., Kingston; Randall K. Robertson, Cooksville (Ont.) Shale Brick Co.

These are the men who will look after the wants of the A. C. S. on this trip, and who will be responsible for the boat, train, automobile and hotel reservations. It is necessary, therefore, that they know as early as possible the number for whom they are to provide.

Following is the schedule of the summer meeting's itinerary:

Sunday, August 13—
Lv. Rochester, Boat.....10:45 P. M.
Monday, August 14—
Ar. Montreal 6:45 P. M.
Tuesday, August 15—
Montreal.
Wednesday, August 16—
Lv. Montreal 8:30 A. M.
Ar. Ottawa11:30 A. M.
Thursday, August 17—
Lv. Ottawa10:40 A. M.
Ar. Verona 2:34 P. M.
Lv. Verona 6:35 P. M.
Ar. Kingston 7:35 P. M.
Lv. Kingston10:30 P. M.
Friday, August 18—
Ar. Toronto 7:30 A. M.
Saturday, August 19—
Lv. Toronto 9:15 A. M.
Ar. Hamilton10:15 A. M.
Lv. Hamilton 2:30 P. M.
Ar. Niagara Falls 4:15 P. M.

Those who desire may motor to Clayton, N. Y., ferry across to Kingston, leaving their cars there, and continue with the party down the St. Lawrence, around thru Ottawa, and Verona, and back to Kingston. They may then motor from Kingston to Toronto, Hamilton, and the Falls. An excellent concrete highway along the river and lake shore makes this drive most attractive.

The expense of this trip will be very low, taking into consideration the number of places visited and the extent of the trip. The estimated maximum total expense will not be more than \$100, and may be considerably less. Rates of fares are as follows:

	Fare	Lower	Seat	Total
Rochester to Montreal.....	\$11.55	\$2.50	.....	\$14.05
Montreal to Ottawa to Verona				
to Kingston	7.80	.....	\$1.30	9.10
Kingston to Toronto.....	6.10	2.75	.....	8.85
Toronto to Hamilton to Niagara Falls	2.90	.....	1.20	4.10
				<hr/> \$36.10

To this must be added \$10 additional expense per day for meals and hotel per single person.

The committee in charge of the trip is anxious to have as large an attendance at this summer meeting as possible, and as in the past, members of the ceramic fraternity who are not members of the Society will be cordially welcomed.



A. C. S. SECTION VISITS DANVILLE

About 15 members of the Chicago Section of the American Ceramic Society were in attendance at the first meeting of that organization to be held away from Chicago. The meeting which was held at Danville, Ill., on Friday and Saturday, June 23 and 24, was a distinct success.

F. L. Steinhoff, chairman of the section and managing editor of Brick and Clay Record, gave a brief outline of developments in the industry and pointed to the fact that the brick industry was fast approaching the stage where machines would almost

wholly supplant men. H. E. Davis, of the Northwestern Terra Cotta Co., discussed humidity dryers. The plant of the American Refractories Co. at Baltimore was described by E. J. Winkleman, chief engineer. At this plant ideas borrowed from the steel industry are being used in the manufacture of magnesite brick. Heat ordinarily lost up the stacks is being used to heat boilers.

Members were escorted thru the plant of the Western Brick Co., by I. N. Doughty, general superintendent in charge of production, who directed attention to some of the more important features of the company's operation. Of notable interest was the stripping by revolving shovel at one plant, hydraulic stripping at another and an interesting mechanical arrangement for pushing cars thru the dryer.

Following the inspection of plants Nos. 1 and 3 of the Western Brick Co., members were shown thru the Hegeler Zinc Co. plant, where the manufacture of retorts proved interesting. The Acme Brick Co.'s plant at Cayuga, Ind., was also visited by some of the members.



Chicago Plants Launch Advertising Campaign in Daily Newspapers

TO PROMOTE the greater use of brick in home construction, the Chicago Brick Exchange has commenced a six months' publicity campaign in Chicago daily newspapers. This is being carried on despite the fact that Chicago is already practically a brick town. Chicago manufacturers, however, appreciate the value of supplementing the national advertising campaign by local advertising, and hope thereby to not only make Chicago a complete brick town, but also to influence its many suburbs to build with brick.

The Chicago Brick Exchange is composed of leading manufacturers in Cook County, including Bach Brick Co., Alexander Burke's Sons, Builders Brick Co., Calumet Brick Co., Carey Brick Co., Chicago Brick Co., Tuthill Building Material Co., Illinois Brick Co., La Bahn Brothers Brick Co., Lake View Brick Co., Lutter Brick Co., and National Brick Co. The combined capacity of these plants is in excess of 1,250,000,000 brick annually.

The advertisements are to appear at least once each week in all of the daily papers, including, morning: Herald-Examiner,

Tribune, and Journal of Commerce; evening: American, Daily News, Post, and Journal. Besides these daily papers, the building supply dealers, not only of Chicago and territory, but nationally, are being reached thru the national building supply dealers' organ, Building Supply News.

Seven Different Types of Copy Used

The advertisements are a series of seven different types of copy, each to occupy a space of 4x2 inches, or 56 lines. As will be noted by reference to an accompanying illustration, the copy touches upon very vital considerations in home building, such as saving in insurance cost, fireproof qualities, resale value, pride in appearance, lower upkeep, and so forth.

The advertisements are keyed so as to determine what results are being obtained from the various insertions.

The campaign is being followed up with letters to answer all inquiries. The letter is of unique design. It consists of a four-page leaflet, on three pages of which is contained propaganda for brick. On one page five architects' drawings of popular bungalows, together with floor plans, are shown. An-

The illustration shows six different types of advertising copy for the Chicago Brick Exchange, each designed to fit into a 4x2 inch space in a newspaper. The copies are as follows:

- A Few Reasons Why People Build of Brick**: Lists benefits like 'More comfort', 'Less expense to build', 'Less upkeep', 'Less insurance', and 'Greater beauty'. Contact: Chicago Brick Exchange, Second Floor, Chamber of Commerce Bldg., Chicago, Ill.
- Brick—The Fire Barrier**: States 'Your family has a right to a fire safe home' and 'Build of non-burnable construction. Build walls of Brick. Provide safety for your family and your possessions.' Contact: Chicago Brick Exchange, Second Floor, Chamber of Commerce Bldg., Chicago, Ill.
- How to Cut Taxes**: Discusses how insurance is a tax and how building with brick can reduce it. Contact: Chicago Brick Exchange, Second Floor, Chamber of Commerce Bldg., Chicago, Ill.
- What Will Your Home Be Worth in 5 Years?**: Asks 'Suppose you want to sell. How much will your home be worth in 5 years?' and compares the depreciation of a \$10,000 house built of brick versus other materials. Contact: Chicago Brick Exchange, Second Floor, Chamber of Commerce Bldg., Chicago, Ill.
- Build Value Into Your Home**: Encourages pride in a beautiful brick home and good judgment. Contact: Chicago Brick Exchange, Second Floor, Chamber of Commerce Bldg., Chicago, Ill.
- An Important Saving**: Highlights the savings in painting costs when using brick, as brick walls need no painting. Contact: Chicago Brick Exchange, Second Floor, Chamber of Commerce Bldg., Chicago, Ill.

Six Types of Chicago Brick Exchange Advertising Copy Appearing in Local Newspapers.

The Letterhead-Folder Which the Chicago Brick Exchange Uses in Answering Inquiries in Regard to Its Advertisements.

A great saving in expense of construction was made by the use of hollow tile, as there were no forms to be built, and when completed, it formed a tile, reinforced concrete vat. One that will not warp, rust, crack or decay with age.



The New Jersey Clay Workers Association and Eastern Section of the American Ceramic Society. The Picture Was Taken on the Occasion of the Meeting at New Brunswick, N. J., June 14.

Simplifies Operations—Pit to Pug Mill

Under Pit Conditions Common to a Great Many Plants in the Country
the Use of an Excavator of the Type Described in This Article Would
Simplify Digging, Transporting to the Factory and Grinding Shale

SO MUCH ATTENTION is being given to the matter of saving money in the clay pit that this department of clay ware manufacture seems to be undergoing drastic changes. Blasting, digging and transportation of raw material is indeed worthy of considerable study. Recently plant managers have frequently asked for data and information concerning the quality of certain pit devices, and it is to meet their questions regarding the shale planer that this article is written.

There is perhaps less known about the operation and work that the shale planer can do than any other machine used in the clay hole. There are several types of shale planers on the market, but in general their principle of operation is quite similar. Briefly, the planer consists essentially of a steel framework of various heights, depending upon the depth of the bank of clay to be worked. This framework supports a cutting chain to which is fastened a series of knives. These knives are always in contact with the face of the clay deposit. As they are pulled up or down they cut off pieces of the clay or shale in much the same manner as a garden rake rips the ground over which it is drawn.

How Cutting Chains Work

This cutting chain is operated vertically or at a slant, depending upon the type of machine used. The cutting chain of one type operates at an angle of 68 degrees with the horizontal, and thus forms a slanting bank. It is claimed that the bank is not as apt to cave in in this case as with a vertical cut.

The various machines on the market differ mainly in their method of operation as to whether the cutting chain moves upward or downward. Where the cutting chain moves upward, buckets are usually placed below the knives to catch the clay

Does the Shale Planer

- Reduce clay pit labor to a minimum?**
- Have to stop for rainy weather?**
- Make winter operation easy?**
- Have a large capacity for digging?**
- Permit more efficient pit operation?**
- Have limitations as to height of bank?**
- Increase dry pan capacity?**
- Reduce dry pan repairs?**
- Save power in grinding operations?**
- Require much power to operate?**
- Obtain uniform mixture of all strata of clay?**
- Find much use in the clay industry?**

This Article Answers These Questions.

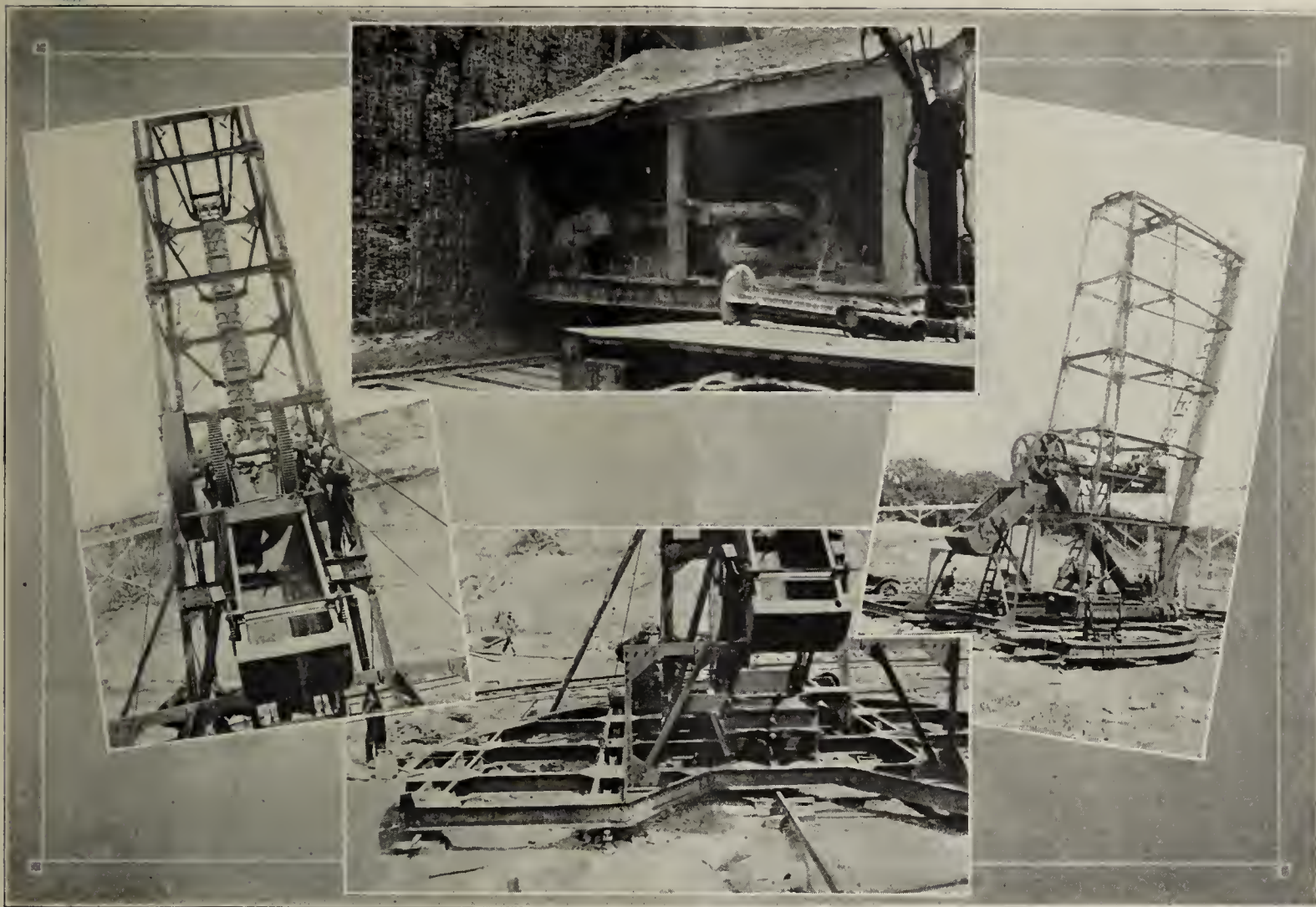
pieces, and when at the top the clay is dumped into a chute which feeds the clay car or whatever other equipment is used to convey the clay to the plant. On the type where the cutting chain moves downward, the clay falls into a conveyor at the base of the machine, and is then conveyed to a discharge point.

The whole machine is moved against the shale bank on tracks or large rollers. It cuts from one-half to one inch from the face of the bank, and also makes

a circular movement of 180 degrees as it cuts. The machine automatically moves forward at a rate of from one-half to one inch from every cut on the face of the bank. Cutting as it moves back and forth, the planer produces a cut which resembles a hollow semi-cylinder or a hollow semi-frustum of a cone.



A "Before and After" View of a Clay Pit. Note the Rough Appearance of the Bank Before the Planer Was Placed in Operation. Same Bank on the Right.



A Close-up of the Mechanical Details. The Machine Moves in a Semi-Circle on the Steel Platform. Cut Shale Is Carried to the Hopper Shown in the Picture at the Right and at the Bottom. An Electric Motor (Top View) Drives the Shale Planer.

At this point the reader naturally wants to know the answer to such questions as (1) What height of bank will the planer operate? (2) How hard a material will it cut? (3) What is the motive power, and how much power is required? (4) How many men are required? (5) What is the capacity? (6) What are its maintenance and repair costs? (7) What advantages has it over other methods?

Operates at Practically Any Height

Height of Bank—The planer is at the present time operating on a large range of heights of banks, varying from 20 to 75 feet. The height of the bank it will work successfully, depends somewhat on the hardness of the shale and its tendency for caving in. However, it is safe to assume that the planer will operate on most any height of bank now being operated in the industry, except, of course, a very shallow deposit.

Hardness of Material Cut—The shale planer is now doing remarkable work in cutting various kinds of shale. It seems that up to a certain point the harder the bank the better the machine works. The probabilities are that this apparatus would not be very successful in clay, because of the tendency that clay banks would have to fall. It works excellently in blue Devonian shale in Rockford, Ia.; in a hard iron ore-like shale in Adel, Ia., and is digging a very hard rock-like shale in Humboldt, Kan. Other places where the shale planer is in use are in Fort Dodge, Ia. (drain tile plant); Sheffield, Ia. (drain and hollow tile plant); Des Moines, Ia. (paving brick plant); Redfield, Ia. (hollow tile plant); New Lexington, Ohio, (roofing tile plant); Coffeyville, Kan. (hollow tile plant); Brazil, Ind. (face brick plant); Brooklyn, Ind. (hollow and drain tile plant).

The shale planer has not had any difficulty in the handling of frozen clay in winter. On one plant the machine has readily cut thru kidney rock, soft sand rock, where boulders are encountered, and is not injured. However, it is doubtful that the shale

planer could be used where a thick strata of stone occurred in the bank.

A very important point in connection with the use of the shale planer is that it absolutely eliminates the need of any dynamite or blasting powder. In some instances the shale planer has saved considerable money in this one feature alone.

Power Cost Very Low

Motive Power—In every case the cutting chain of the shale planer is operated by an electric motor of from 25 to 50 horsepower. A small motor of 5 to 7½ horsepower provides power for the horizontal movement and also for the conveyors. The power cost varies in each case, but approximates three to five cents per ton of shale won. The cost of the power cannot be considered an expense, as the finely prepared material requires much less power to grind in the rolls or dry pans than if coarse material were dug. In fact, the total power used up to the pug-mill is smaller with a shale planer than with any other digging equipment.

Number of Men—The number of men required to operate the planer is one or two. When the output requires two men, one man operates the planer itself and the other man is employed to look after things on the ground. One Iowa plant found that it could dispense with the services of six men that had been employed in the pit before the installation of the shale planer. A Kansas operator used six dollars' worth of powder per day and 25 men in his pit before he installed a steam shovel, and later displaced the steam shovel with a planer, which requires the services of only two men.

Has Large Capacity

Capacity—The capacity of the shale planer naturally varies with the height of the bank and the hardness of the material. A plant having a very hard material and a 20-foot bank is of the

opinion that its planer will handle 250 tons in a ten-hour day. On another plant operating a 45-foot bank, it is estimated that the capacity is about 400 tons per day of ten hours, altho 217 tons was the heaviest run ever made.

Another plant working on a 75-foot bank excavates 400 tons per day, while at a paving brick plant the shale planer digs approximately 300 tons of material from a 45-foot bank.

Maintenance and Repairs—Shale planers have not been used in the industry very long. There are perhaps only 12 to 15 now in use in the industry. The majority of these have been installed during recent years, and repairs and maintenance figures are not available. The knives which cut the bank perhaps receive the greatest amount of wear, and these are usually made reversible and can be changed by simply knocking out a taper pin and turning the knives around.

One machine now in operation has already excavated 300,000 tons of clay and is still working in excellent condition.

There are several cases where the first models of shale planers were found unsuccessful, because of the bank caving in. But in these cases the cut was a vertical one, and it is very likely that the present slanting type of machine would overcome the difficulty.

Rain Does Not Deter Operations

Advantages—Many of the advantages which accrue to the user of the shale planer are obvious to the reader from the foregoing description of its operation. On the majority of clay plants, rain usually prevents the pit gang from working, and during the winter months the plants that are able to remove clay from the pit economically are few and far between. The shale planer will deliver practically dry clay in the hopper under any weather conditions when operated continuously. An instance is recorded where it had run constantly during a rain for hours at a time, and when the clay hauled from the machine was ground at the rate of about 14 tons per hour in one dry pan, it had a fineness that would go thru a piano wire screen with openings a little less than one-sixteenth of an inch.

Nor does cold weather interfere with the operation of this machine. It has been found that when the mercury registered 30 degrees below zero, the face of the bank froze to a depth of only four inches during the night, and this frozen material was rapidly planed off when the excavator was started in the

morning, its continued operation preventing any further freezing during the day.

The excavator delivers material of nearly constant moisture content which simplifies grinding and pugging operations materially.

Mixes Strata Uniformly

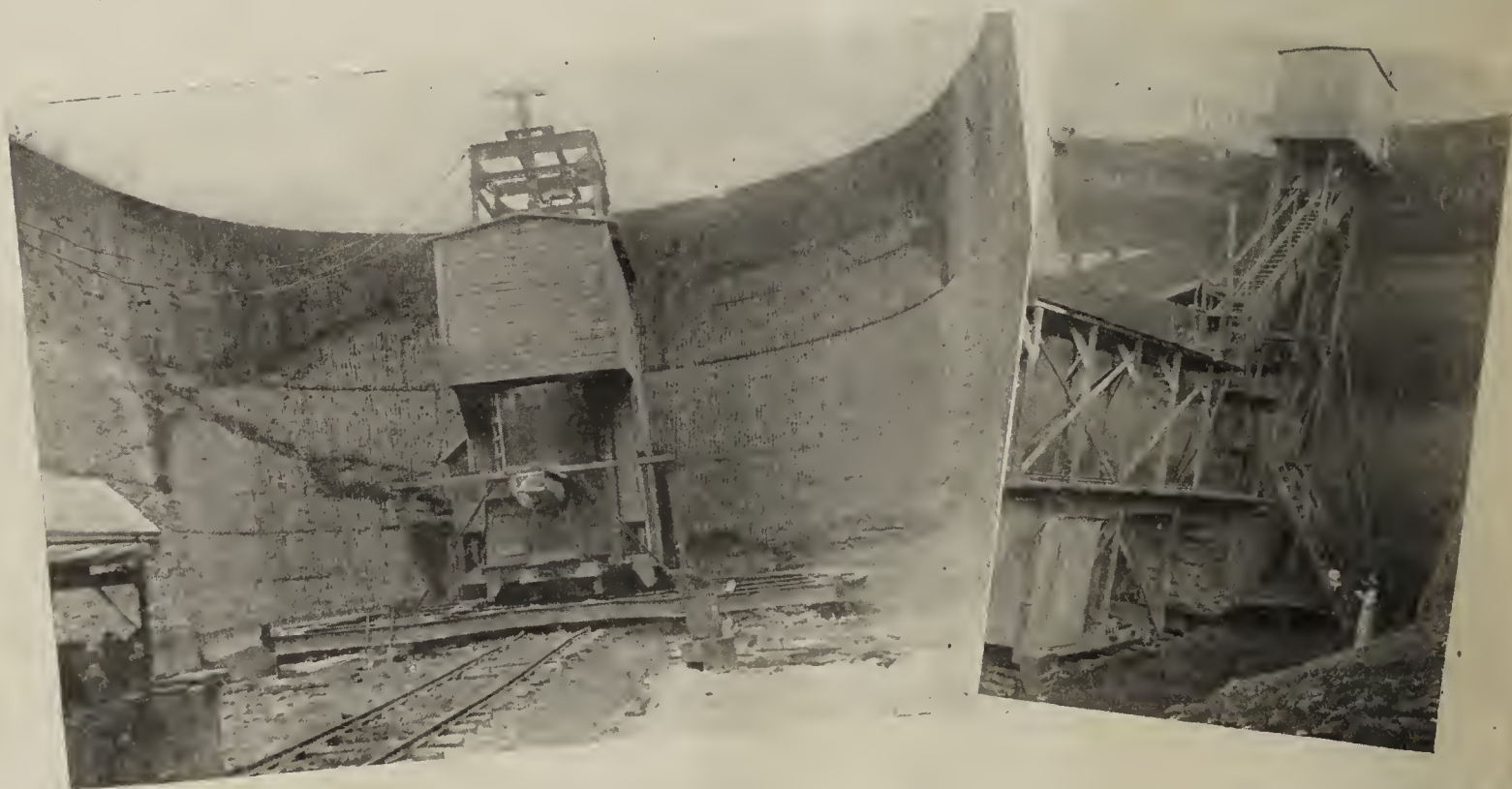
One of the greatest advantages in the use of the shale planer is the uniformity of the mixture that is obtained. The planer shaves the material from bottom to top in equal proportions, and thus each stratum is represented in the cut in the same proportion that it occurs in the bank. A Kansas plant reports: "Prior to the installation of the shale planer, while digging with the steam shovel, we frequently would get an uneven mixture of the gray and yellow shales which occur in our bank. The yellow shale does not dry well, and when we get too large a percentage of yellow shale we had trouble with our tile cracking in the dryer. Since we have been operating the planer, however, this trouble has disappeared, as we have a very even mixture."

"Not only is the clay thoroly mixed, but because of the principle of operation of the machine it is quite well ground, thus saving power in grinding at the plant."

One plant reports that the preparation that the shale planer gives to the clay will reduce the cost of the dry pan repairs fully 40 per cent. Moreover, the power that they save in driving their pans because of the use of the planer will almost run the shale planer. This is also the experience of other users of shale planers. Thus the power consumption of the planer is practically erased because of the saving in power required for fine grinding. Another saving in this connection is that the dry pan operation is also made much simpler from the standpoint of regulation. On one plant where formerly two men were required to watch the dry pans, the installation of the planer has enabled them to dispense with the services of one of the men. Not only is power saved and labor reduced around the dry pans, but the dry pans are enabled to grind more material and thus give greater capacity. In some instances this might enable a plant to reduce the number of dry pans operated.

Belt Conveyors Easily Used

Because of the fact that the shale planer operates uniformly and consistently, it enables the plant operator to change his sys-



The Shale Planer is Adaptable to Practically Any Size Bank. The Height of the One on the Left is About 30 Feet While the Other Is 75 Feet.



This View Gives an Excellent Opportunity to Study the Cutting Belt on a Shale Planer in Use.

tem of transportation if he so desires. Belt conveyors can be brought directly to the shale planer, and the clay transported to the plant without a tramway. One plant is now using this system with considerable success.

The shale planer, like every other piece of equipment in the clay industry, will not solve every manufacturer's problem. Conditions among clay plants vary so greatly that a machine which might be successful on one plant may be a total failure on another. However, it is quite readily apparent that there is room for the application of the shale planer on a considerably greater number of plants than the total on which it is being used at the present time. Its many advantages might well be investigated by the clay manufacturer wherever he is giving attention to operating conditions in the clay pit. One of the users of the shale planer stated: "While the price of one of these machines is quite high, we consider it the best investment we have ever made."



COMMON BRICK STOCKS LOW—PRICES STEADY

The brick industry is holding prices down to a fair profit, and is keeping faith with the public, says the monthly digest No. 21 of the Common Brick Manufacturers' Association. A glance at the range of prices this month and last shows that they are, on the whole, holding steady, despite greatly increased demand which in some sections is taxing the capacity of the plants, increased prices of coal in some areas and scarcity of that commodity, rising costs of manufacture in the Eastern states and scattering toward the middle West, and marked increase in prices of some other basic building materials.

The composite price at the yards reported on January 1 was \$13.47, in May, \$12.74, on June 1, \$12.68, and this month \$12.83. These figures are not, however weighted averages, and are low because of sharp competitive figures in some parts of the South where manufacturing costs are also low.

The coal situation is becoming a real problem and it is to be hoped that the efforts of the Administration to bring it to an end will be speedily successful. There can, unfortunately, be but little doubt that the situation will be aggravated after July 1 by the retail coal dealers coming into the market under the reduced freight schedules. Plants in New England, thru Pennsylvania, Ohio, and as far west as Kansas and Missouri are affected most. Only one plant is reported definitely closed for lack of coal however. The coal situation, together with the threatened railroad strike, are unfavorable factors in an otherwise encouraging situation.

The brick industry is producing a more nearly normal amount of brick than for two years past, and the shipments from the



Looking Down Onto a Planer. Notice How Simple It Is With This Equipment to Convey Shale to the Cars for Transportation to the Plant.

yards were greater during the month than the brick produced; 93 firms shipping a little over 95 million, with the kilns turning out 89 million. That there is little reserve stock to draw upon is indicated by the fact that orders on books total 258 million, stock on hand being only 154 million.

There is a gratifying improvement in District No. 3, comprising Virginia, the Carolinas, Georgia and Florida. Last month the orders on books were less than the stock on hand, this month the orders exceed stocks by over a million. The brick plants in the giant centre of the brick industry—Chicago—are humming with activity. Brick are being shipped hot from kilns to meet the heavy demand. Hudson River plants are working at maximum capacity. The great brick producing states of Pennsylvania and New Jersey, which with Maryland, Delaware and the District of Columbia form District No. 2, have orders for 32 million brick with stocks on hand of a little short of 14 million for the nine firms reporting. Fifteen million brick were shipped from the plants of these firms last month and 8½ million produced. In Los Angeles the brick men are working to produce the difference between almost 12 million brick ordered and only a little over two million ready to ship. Six firms report that skilled help is scarce, but in the great majority of cases the labor supply is ample and the men are working efficiently.



LATIN-AMERICAN MARKET IS GOOD

Among the principal industries of Georgia and the southeast that have established definite relations with Latin-American countries the past two or three years is the brick industry, and southern made brick is now being largely exported to Cuba, Central America and other countries further south. This export business, manufacturers in Atlanta state, has developed to an important stage as there exists a large potential market in these countries not only for brick, but also for nearly all kinds of building materials, and for machinery and iron and steel products.

M. Dominguez of Madrid, Spain, formerly in charge of the foreign correspondence division of the Irving National Bank, New York, in a talk before the Atlanta, Ga., Foreign Trade Club, stated that any manufacturer planning to establish markets in Latin-America should first send a representative there to familiarize himself with conditions before any direct sales effort is made. A thoro knowledge of Spanish, he said, is essential, and also familiarity with the habits and customs of the people, and their manner of doing business.

"There is plenty of business to be had in these countries," he declared, "if the manufacturers will only employ the proper methods in their efforts to obtain it."

Business Briefs and Trend

BUSINESS SHOWS RAPID IMPROVEMENT

Practically every industry for which figures have been received by the Department of Commerce showed greater activity in May than in April. Out of 42 production movements reported, 38 showed an increase and only four declined, compared with the month preceding. Prices have shown the greatest increase for any month in more than two years. Forward orders are increasing and business again presents the picture of prosperity. In the past it has been the excesses of the prosperity period that have been responsible for the depth of the depression that followed. The present is no time to discard the caution that the recent period of depression has taught.

Prices on the average have not fallen below about 40 per cent. over the prewar level. They are now nearly 50 per cent. above that level. No one knows at what level prices will finally become stabilized but it is believed that care should be used in placing large forward orders for raw materials at prices much above the present level.

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ZONING TO STRAIGHTEN JUMBLED CITIES

Avoidance and correction of the present topsy-turvy arrangement of so many American cities, the cause of millions of dollars' loss, is the object of "A Zoning Primer" issued by the Division of Building and Housing of the Department of Commerce, according to an official announcement.

Random crowding of stores among private dwellings, the elbowing of factories and noisy smelly garages into the rightful domains of neat retail stores or well-kept apartment houses, and the construction of tall, bulky office buildings so closely crowded that the lower floors are too dark for human use and consequently seldom occupied, is part of the present stupid, wasteful jumble which proper zoning will prevent and gradually correct, in the opinion of the Advisory Committee on Zoning of the Department of Commerce.

The pamphlet describes the object of zoning, the need, the health and property protection afforded, and its effect on the

cost of living. Legal problems, with an outline of what some cities have accomplished, and a zoning program are also included among other subjects. Copies are sold by the Superintendent of Documents, Government Printing Office, Washington, D. C., at five cents each.

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CUSTOMS RULINGS ON CLAY PRODUCTS

The Board of United States General Appraisers, New York, has sustained a protest of M. V. Crabtree, Seattle, Wash., against the duty imposed on imported hollow tile building blocks, and in a ruling (June 27), reduces the tariff from 20 per cent. ad valorem under Paragraph 81, Tariff Act of 1913, to ten per cent. ad valorem, under Paragraph 71.

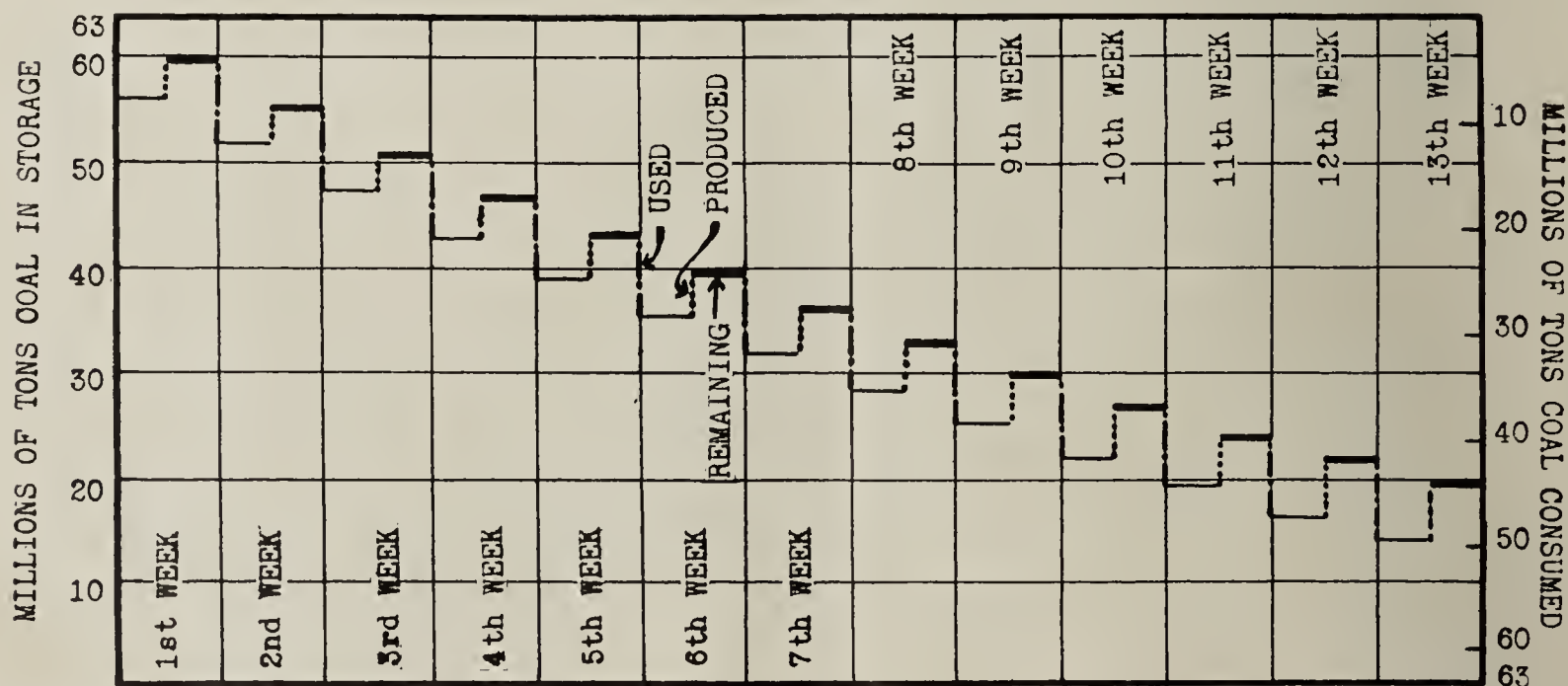
In an opinion rendered June 25, the board affirms the collector's assessment of duty at five cents per square foot on certain tiles imported from England by the Rigney Tile Co., San Francisco, Cal., which held that a duty of but 1½ cents per square foot should apply. The tiles in question were classified as semi-vitrified, and while claiming that in England the material would not be so designated, the importers conceded that the tiles were similar to those produced in the United States as semi-vitrified tiles.

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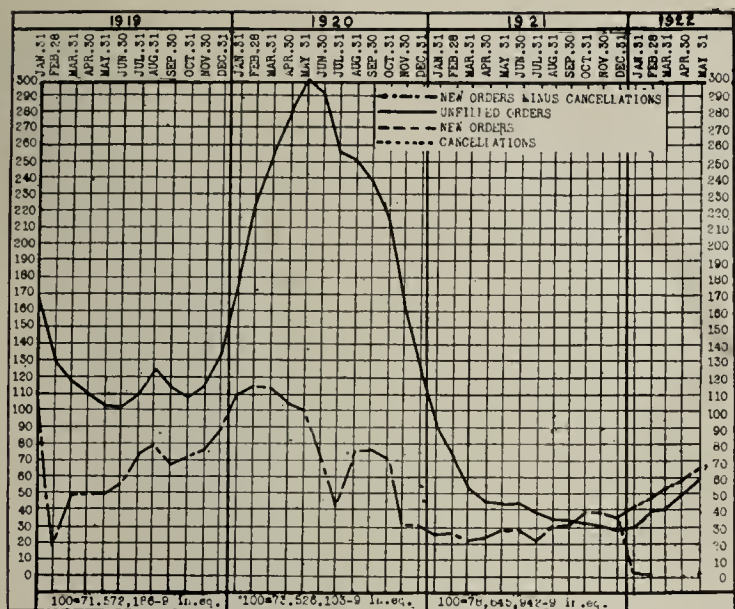
SEWER PIPE TESTS IN LOS ANGELES

The Bureau of Standards has undertaken an investigation of the condition of sewer pipe in the city of Los Angeles for the purpose of studying the effect of sewage and sewer gases on clay and cement pipes, both of which are now being extensively used in that city. In this work it is cooperating with the clay and cement pipe manufacturers and the office of the city engineer.

The program of the investigation involves the excavation and inspection of sections of pipe from laterals in various parts of the city, and the replacement of these with tested pipe for future examination. The major part of the work, however,



Graphic Illustration of the Country's Rapidly Diminishing Coal Pile. 20,000,000 Tons Storage Is Considered the Danger Line and It Will Be Noted that Stored Coal Has Already Dropped Below This Mark. As the Chart Shows 8 Million Tons Are Used Every Week and Approximately 4.5 Million Tons Are Produced.



Potential Demand for Fire Clay Brick. The Figures on the Side of All Charts Stand for the Monthly Economical Producing Capacity. These Charts and the Two on the Bottom of the Page Were Made by the Refractories Manufacturers Association.

consists in the installation of small sections of pipe in man-holes in such manner that a part of the specimens will be submerged in the sewage and a part exposed only to the action of the sewer gases. The exposure points have been selected in such manner as to cover typical conditions thruout the system, and at these points periodic analyses of the sewage and sewer gases will be made for the purpose of determining the concentration of ingredients which may be injurious to the pipes.

The real object of the investigation is to determine from the chemical survey as outlined above general relations between the rate or extent of deterioration of pipes and concentration of damaging elements in the sewage and gases. The problem is a difficult one, not only on account of the extent of the work involved, but more particularly because the field which it enters is as yet unexplored.

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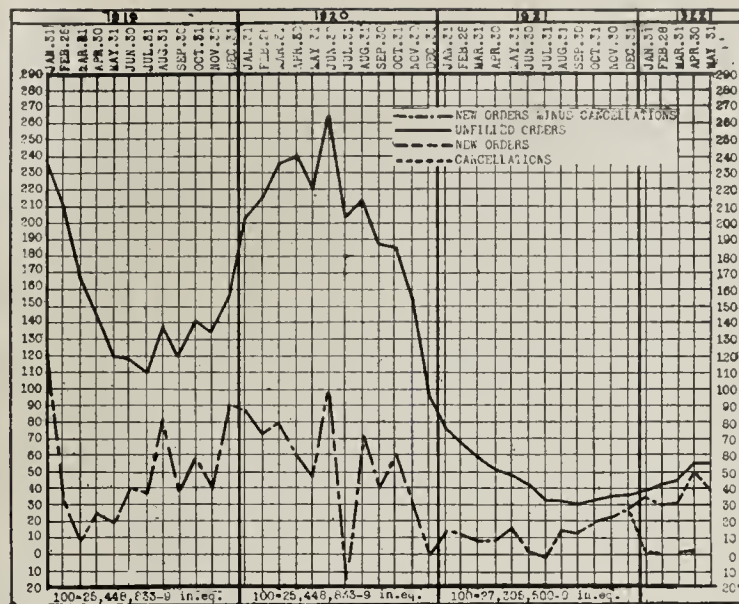
UNITED STATES STILL SHORT OF HOMES

Despite the increased building activity in the United States during the last six months, the housing shortage for the country as a whole was recently estimated as somewhat more than 2½ years' production, by John Ihlder, manager of the Civic Development Department of the Chamber of Commerce of the United States. This situation is not the same in all cities, in some the shortage is estimated at nearly four years, while in others it is as little as a year and a half, and even less.

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ELIMINATING WASTE IN BLASTING

All clay plants that use explosives in the winning of their clay will be interested in a new book published by the Hercules



Potential Supply of Fire Clay Brick. See Caption under First Chart.

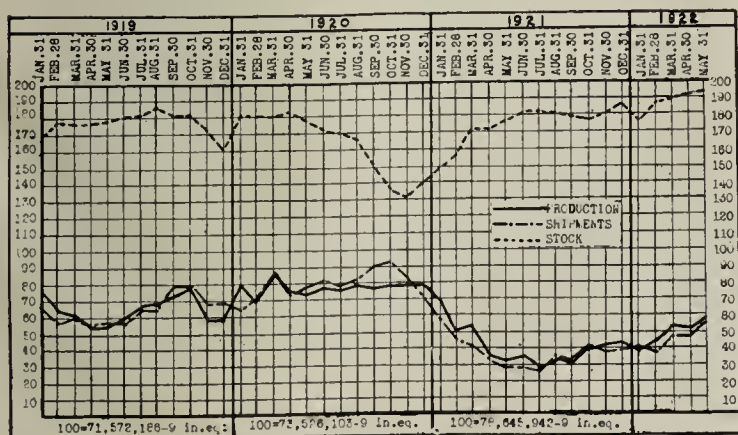
Powder Co., entitled "Eliminating Waste in Blasting." It is a 56 page book telling how some progressive companies are preventing waste and containing suggestions from the Hercules company. There are chapters on planning the work; drilling; choice of explosives; advantages of No. 8 blasting caps; use of stemming; preventing waste in firing, and other things of interest.

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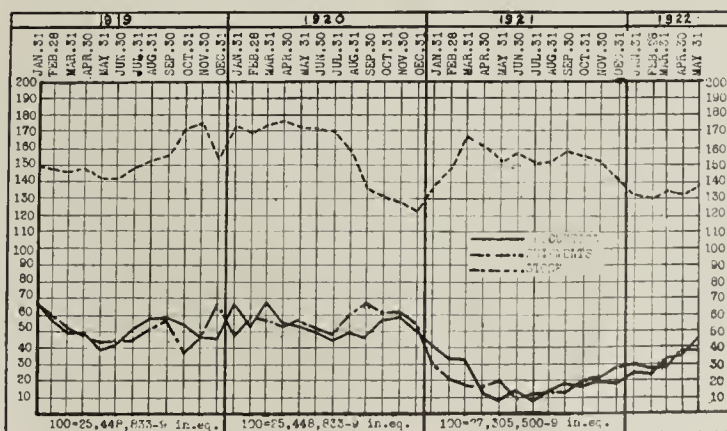
BUILDING MATERIAL INDEX NUMBERS

Index numbers of brick, and all building materials from 1913 to 1922, have been issued recently by the Bureau of Labor Statistics of the Department of Commerce. While the comparison dates back to 1913 the center of interest lies in the turn of the national building material price movement during recent months. The material prices are based on the revised index numbers with the average monthly prices in 1913 as 100.

	All Building Materials	Brick
1913—Average	100	100
1914	92	99
1915	94	99
1916	120	108
1917	157	132
1918	172	176
1919	201	206
1920	264	279
1921	165	232
1922 (January)	157	204
(February)	156	202
(March)	155	200



Potential Supply of Silica Brick. See Caption under First Chart.



Potential Demand for Silica Brick. See Caption under First Chart.

TESTING CONCRETE DRAIN TILE

In cooperation with other agencies, the Drain Tile Committee of the American Society for Testing Materials is conducting an extensive investigation to determine the effects of acids and alkali solutions on concrete drain tile. The result of this investigation will no doubt have a marked effect upon drainage construction, and thru cooperative action of the U. S. Department of Agriculture, will result in very great benefit to the American farmer.



CHANCE FOR PHILIPPINE BUSINESS

It may be of some interest to know that the Acme Brick & Tile Co., P. O. Box 1436, Manila, Philippine Islands, is trying to get in touch with fire brick and fire clay producers who desire to enter that field with their products.

START SCHOOL FOR 13 BUILDING TRADES

One of the most important steps which the Chicago Citizens' Committee to Enforce the Landis Award has taken against recalcitrant labor unions was the establishment of a trade school to instruct men in the various building trades. Competent professors and instructors will be engaged to teach each of the 13 trades. The first class to be established was a class in plumbing with 20 pupils. A special feature of this instruction course will be the cooperation of the instructors with the journeymen while actually at work on the job. Under the course as planned by the committee, the "professors" will visit each journeyman as often as possible during the week to watch his work under actual, everyday conditions and seek to remedy any defects which develop during the instruction which follows.

This school, it is hoped, will solve the problem of the serious shortage of skilled building mechanics.



The Building Situation

NEW BUILDING OPERATIONS are developing in New England at a rate that insures peak construction for almost an indefinite period ahead. Work of this character, covering both residential and business structures, is just about double the amount of new construction during this same time a year ago. It is believed that this rate of gain will be well maintained thruout the year. Contract awards for the district are now averaging from \$9,000,000 to \$11,000,000 weekly, as compared with from \$2,000,000 to \$3,000,000 in the same weeks of 1921, and from \$8,000,000 to \$10,000,000 in 1920.

Residential construction is soaring to new high figures at Boston, Arlington and vicinity. In the last noted city, a total of \$930,000 has been expended in one and two-family dwellings since the first of the year, and it is estimated that about \$1,000,000 more will be absorbed in this line during the next few months. At Boston, the Massachusetts Bond & Mortgage Co., has agreed to finance the building of 100 new homes in East Boston.

Larger Construction at New York

The five boroughs of Greater New York continue to pile up high construction totals, and at this mid-season of the building year, there is more work on hand and in prospect than the industry locally can handle comfortably. There is a heavy demand for men and materials, and with no surplus of these available, there is a resulting slowing down, each operation to await its natural turn.

While the labor situation at New York is satisfactory, without strikes or disturbances, there is a tendency to secure skilled labor "at any price," particularly on the part of speculative builders.

The wholesale brick market maintains a high point of activity. The heavy cargoes arriving from the Hudson River yards are absorbed immediately, and the keen interest in securing the material has resulted in a price advance from \$20 to \$21 and \$22 a thousand in cargo lots, alongside dock. The increased figures are having no effect in curtailing sales and the heavy advance demand continues. During the past fortnight, a total of 89 cargoes have reached the city, and all distributed.

Brick producers in the Hudson River district are having their troubles as early as it is in the season; with labor scarce, and the available help decidedly inefficient, the fuel situation is developing more serious aspects, and supplies are being secured far below the requirements. Unless positive relief comes, it is certain that a number of yards will be forced to reduce the present rate of outputs. Heavy rains in recent weeks have tended to retard production also, and consequently, the new

brick ready for market is far less than it should be—far less than producers expected at this time.

Good Activity in New Jersey

The hot weather has brought encouraging continuance in construction operations in New Jersey, despite the fact that figures of current weeks are less than those registered in the opening weeks of the season. Activities, however, are utilizing all available labor, and making heavy demands upon brick and other burned clay building products, so the situation, as a whole, sizes up satisfactorily. June increases have been evidenced in a number of cities, including Newark, Trenton, Paterson, Jersey City and surrounding districts, and many hundreds of thousands of dollars are being diverted to new residences and business buildings.

Heavy Residential Work at Philadelphia

The final weeks of June brought exceptional daily figures at the local building department, with June 27 topping the list with the filing of plans for 120 two-story brick homes, estimated to cost \$608,100; one group, alone, comprised 34 such buildings to be erected each 15x36 feet. Statistics for the month are now being compiled, and are expected to show record-breaking proportions.

There is no decrease in operations at Baltimore, and heavy construction continues both in residential and industrial work. The weekly average is running in excess of \$600,000 for all classes of buildings. Carpenters have made a demand for a wage advance from 80 to 90 cents an hour, or a return to the schedule that existed before the business depression. All skilled labor of this class, totaling about 3,700 men, is now at work, and there is a call for more help. Up to this time, the wage request has been denied.

Columbus Breaks All June Records

The records of the building department of Columbus, Ohio, during the month of July broke all previous records for that month in the number and valuation of permits granted. During the month the department granted permits for 526 structures to cost \$1,262,400 as compared with 451 permits and a valuation of \$1,089,700 in June of last year. During the month 162 dwellings were chartered. For the first six months of the year the department issued 3,015 permits having a valuation of \$7,676,700 as compared with 2,529 permits and a valuation of \$5,264,530 in the corresponding period in 1921. Increases in

(Continued on page 60)

Cuts Delivery Time from a Week to an Hour

Installation of Hoisting Arrangement Permits Delivery by Truck Where Formerly Everything Was Shipped by Rail—Plant Is 125 Feet Below Ground Level

SOMETHING akin to Mohammed going to the mountain when the hill refused to move toward the prophet, may be said to apply to the progressive brick manufacturer who, confronted with a natural problem, goes directly to it to overcome.

For the last 20 years the plant of the Cleveland (Ohio) Brick & Clay Co. has operated in the upper Flats district of Cleveland, depending solely upon the railroads to make deliveries—and this in instances where materials, paving brick, its principal product, might have to move as little as three miles.

The advent of the motor truck, with its speed and large carrying capacity, a comparatively new era in heavy tonnage trucking, started the heads of this Cleveland Company toward a means of extricating themselves from the tremendous expense of making delivery.

Nearing completion is a method whereby the maximum in efficient handling of material from kiln to the contractor will be accomplished.

Install Monorail Conveyor and Hoist

This comprises a monorail hoisting and loading device, of which an I beam is the component part, which was specially designed to meet the requirements at this plant.

To explain the operation of this new device, it is necessary to explain the physical conditions in and about the plant itself. The plant comprises 16 kilns, ranged in a single row, flanked on one side by the main spur from the Baltimore and Ohio Railroad, and on the other by the loading spur. Between the loading spur

and the shale bank are the various buildings for equipment and like purposes, and then the bank itself, now rising to a height of 125 feet. Running to the edge of this bank are some half dozen well paved streets, any one of which could be used for hauling purposes but for their inaccessibility from the kilns far below.

To manufacturers who have to depend solely upon the railroads for shipment of their product, it will be readily seen that this costly method must, in the long run, require either excessive production in order to make a paying plant, or reduce to a minimum the profits that the owners must feel they are rightfully entitled to.

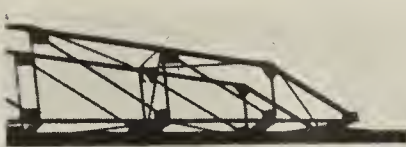
Takes Load Directly to Truck

The monorail hoist and loading device is erected atop the bank at the foot of one of the streets touching the edge. The rail turns at right angles immediately at the point where the hoisted load comes into position under the supports. The load follows the rail a distance of perhaps 50 feet, where trucks may be waiting to receive it.

A glance at the drawing will show at once how this new equipment facilitates handling and delivery. The loads are transported from the kilns on three by six foot platforms placed on trailers. These are hauled to the foot of the bank by a Clark tractor. These tractors handle trains of three trailers. The platforms are picked up by the hoist 125 feet above, at the top of the bank by means of four cables affixed to the loading beam four feet apart. The cables are handled by nine-foot drums,



A Close View Showing the Carrier Which Pulls Up the Load and Carries it Around to the Truck or Stock Pile. Four Cables Are Attached to the Platform to Guard the Load Against Swaying.



The conveyor-Hoist Projects Over the Side of the Cliff to Allow for Clearance. From the Beam to the Level Where the Platforms Will Be Lifted from Is a Distance of 140 Feet.



The Drawing Clearly Illustrates the Method of Operation of the Monorail Conveyor-Hoist. The Pit Is 125 Feet Deep and the Plant Is Located at the Bottom.

and the whole arrangement is designed to eliminate swaying motion as the load travels its 125 feet thru the air.

In the case of the Cleveland Brick & Clay Co., explains C. U. Hendershot, plant superintendent, who, with his brother, A. L. Hendershot, is responsible for this innovation in handling of brick, speedier delivery, and better service to the contractor were the paramount issues which inspired this change from what may now be considered antiquated methods to the more modern. Both of the Hendershots, by the way, have been active in the management of the plant for the last 12 years.

Can Load Trucks in 15 Minutes

"Figuring that a plant handles 200 tons of brick a day, if it can eliminate even one handling of the material, a tremendous accomplishment in economy, efficiency and service will have been attained," says Mr. Hendershot. "When it is considered that one man can handle but two ten or twelve-pound pavers at one time, and were required to hold them in his hands very long, it would be a short time before not only the profit on those brick, but the entire cost, would have been eaten up in the handling. We believe with our new device we will cut such costs a great deal."

It is estimated a total of five tons of brick will be carried from the kilns in one haul, approximately one truck load. It is believed that each truck may thus be loaded in 15 minutes, altho of course some leeway must be allowed for stacking on the trailers. Even with this allowance, it is figured that, if a load of material must be delivered on a job three miles away, it can be handled within the hour. Contrasting this with the fact that even if cars from the railroad are available, it often



The Traveling Lift Brings Its Load Around to the Left Where the Brick May Be Dumped Into a Truck or Stacked in a Pile.



A View of the Plant of the Cleveland Brick & Clay Co., Taken from the Point Where the Hoist Is Located. The Cliff Is 125 Feet High.

takes nearly a week to make such a delivery, the result must be significant, both from the manufacturer's and the contractor's viewpoint. That of the contractor is especially important, for it must be remembered that in delivering to any accessible point, the contractor must supply his own hauling and labor to rehandle the brick from the car at delivery point to his job.



TAKE STEPS TO TRAIN BRICKLAYERS

The restrictions by unions on the number of apprentices in the building industries some months ago brought out a resolution in the Cincinnati Real Estate Board denouncing the practice of limiting the number who can enter the building trades as "Un-American." An investigating committee was appointed to look into the matter and this committee later submitted a report softening the original resolution but approving its principle.

The new resolution called for the organization of classes in building trades in the public schools as a means of training the youth who wants to take up construction work.

A superficial survey of conditions in the building trades shows that practically the same conditions prevail in each

of the trades. There are not enough bricklayers, there are not enough plumbers, carpenters are not too numerous and so on down the line. Skilled men in all these lines are in demand now and later on it is questionable whether there will be enough to realize the greatest fruits of the inevitable building boom.



PURDUE TO SHOW FARMERS BEST HOG HOUSES

Farmers in nearly every section of Indiana will have an opportunity to see models of the best type of hog houses for use in this State. Purdue University has arranged to send thru the State an exhibit with four different types of houses to show the sunlight during different parts of the day in each house. Electric lights, in a small dark room, which is part of the exhibit, show where the rays of the sun will fall in the different houses thruout the day. Blue prints of these types will be offered at cost. Thru this work, the university hopes to stimulate a wider interest in better hog houses. The exhibit started over the state at Decatur, Ind., early in June. It will be left one week in each county. The schedule includes 35 of the 92 counties and will run until the last of February. The Indiana state fair also will be visited.



Country's Business Men Believe Balance of 1922 Will Be Good

QUESTIONNAIRES sent to representative firms in the eastern building construction industry brought answers to the Dow Service daily building reports that indicate general satisfaction with the outlook for the remainder of 1922, at least.

100 were mailed and 90 replies were received. Of the first question: "What, in your opinion, is the principal retardant to a free construction market?" 85 named labor as the principal cause. Three attributed it to both labor and high cost of materials, one to shortage of money for commercial building purposes and one to the uncertainty regarding the market's requirements for more building.

To the question: "Is demand below or in excess of production of building materials?" 72 replies were to the effect that production is trying to keep pace with demand, which was too spotty under present conditions of the market to warrant general free full capacity production. Nine replied to the effect that the only reason production was not now exceeding demand was because the fuel shortage prevented full capacity production. Three charged that production was being held back to keep prices high in the face of growing demand. Six, on the other hand, believed that there is going to be a reaction in demand, due to advancing prices of commodities, resulting in over-production, hence lower prices and that, therefore, demand would soon fall below present rate of production.

Expect No Immediate Wage Decreases

The third question: "Do you look for labor liquidation before 1923?" brought an almost unanimous negative reply. 55 replies indicated a belief in a continuing scarcity of skilled labor for building construction work this year, but with wage reductions next year. 13 looked for continuous shortage of labor and consequent high wages until the ban on immigration is lifted. 11 expressed the belief that the "snowballing" tactics of certain kinds of building labor was checking building construction progress and

would effectually blight it for next year. Three looked for a sharp reduction in wages of general building trades labor this year, two looked for higher wages in 1923 and six expected long labor strikes and lockouts before wages would be permanently lowered to the 1913 scale.

Were it not for the coal shortage there is no doubt but that the replies to question No. 4, as to what the industry expected of building material prices, would have emphatically prophesied lower prices, because 88 of the 90 replies received were qualified by the remark to the effect that the fuel shortage would have an influence in keeping prices high in 1922. The other two (from brick manufacturers) looked for a lowering of prices before the end of the year.

No Price Slump Before 1923

Registered demand, now fairly measurable for the remainder of 1922, is sufficient to prevent a general building material price slump before the opening of the 1923 building season, according to the bulk of the replies received. Some believed, however, that the peak of building material price ascension had been reached for this year, barring further fuel complications.

Replies to the question as to whether labor was at the present time freely available or scarce brought replies from 29 that available labor was either inefficient or practically out of the market, 61 reported plenty of labor. The greatest scarcity is apparently experienced among bricklayers, tile layers, plasterers and in some of the metal trades.

Out of the 90 replies received only two made no reply to the query as to whether conditions warranted an optimistic or pessimistic mental attitude now. 83 were optimistic as to the soundness of business conditions for the immediate future, two were frankly pessimistic, two were optimistic regarding 1922, but were depressed regarding the outlook for 1923, while one was "optimistic" on the theory that the U. S. A. always wins out in the end.

Manganese for Improving Quality

Colors Are Improved—Unsightly Colors Can Be Changed
to Popular Shades—Beautiful Effects Produced

QUALITY—that's what face brick manufacturers are striving for. On most every face brick factory that you might visit you will find special attention given to this point—and why should not this be so? Is not face brick a quality product? New rough textures are being evolved; new colors sought for; care in hacking and setting is being given considerable attention; barium carbonate is being used in considerably greater quantities to reduce whitewash and to improve colors; manganese oxide is being introduced for certain color and decorative effects.

Embellishment of face brick by the use of manganese oxide is perhaps least known of the methods of improving or producing better quality ware. Manganese oxide is more commonly known as manganese, and is also referred to as pyrolusite. It has been used for many years for color effects in brick and other clay products—its use being principally confined to the manufacture of products made from light burning clays. The color of pure manganese is black, while the impure varieties will have a dingy black and brown color.

Light Burning Clay Can Be Colored

All light burning clays from yellow to light buff or white which can withstand a kiln temperature of 1,950 deg. F., the fusing point of manganese, can be colored with ground manganese. Many attractive shades and styles are produced. This applies to all light shades of clay, whether they be refractory or not.

Even red burning clays can be given different color effects. Red burning clays can be made to produce a brown brick by the use of manganese, and there are even cases reported where light red burning clay has been made to produce a better red by the use of manganese.

A white, yellow or buff burning clay can be colored thru the use of powdered manganese so that it will produce a delicate French gray. It can be made to give a clear or buff speckled brick by the use of granular material and by the use of both powdered and granular material a gray speckled shade. In this case the powder gives the gray background and the granular material the specks. The exact size of the specks will depend, of course, upon the mesh of the granular material and the exact shade will depend on the method of mixing, the quantity of manganese used, temperature to which the ware is burned, and upon the characteristics of the particular clay.

How to Use Manganese

The ordinary method of using manganese is to mix it with the clay during the process of manufacture. Manganese for use in the brick industry is usually ground to various sizes running from 100, 80, 60, 40 and 20 mesh. The best place to introduce manganese is as near to the beginning of the manufacturing process as possible. Then every stage of manufacture helps in obtaining a better mixture. Bad mixing results in streaked and cloudy brick, in marked varia-

By the Use of Manganese

Better colors can often be produced in brick.

Light burning and buff brick can be made into beautiful French gray shades.

Remarkable and unusual speckled effects can be produced.

Red burning clay can be made to produce the very popular brown shades.

Better colors can often be produced in drain tile and hollow tile which burn to unsightly colors.

tions of shade, and the expense of sorting and the loss in bad production will often more than offset the cost of careful mixing. Thus it is essential to pay considerable attention to the mixing.

On some plants it is customary to use a can or scoop of manganese to a barrow or cart of clay. The clay is then dumped into the dry pan. This is very crude, and results in a

wide variation of color. A better method is to weigh the clay and manganese and feed them simultaneously and continuously in the pug-mill. For this purpose the poidometer is extremely useful, or the disc feeder. A few manufacturers are blowing or spraying the manganese on the outside of the clay column when first made, and rolling it on before it reaches the cutter. The quantity of manganese to use will depend a great deal upon the particular requirements of each clay. The range varies from one-half per cent. to five per cent. of manganese in terms of clay used.

Burning Highly Important

The burning plays an important part in the use of manganese. When the temperature is low, 2,100 deg. F. or less, the coloring effect is less and more manganese must be used. At higher temperatures 2,250 deg. F. above, there is a fusion of the manganese and probably a combination with silica. The spots spread with increasing temperature and the coloring effect is thereby increased.

The fusing point of manganese is in the neighborhood of 1,950 deg. F. If a kiln is held at this temperature for several hours the coloring effect of manganese will be brought out more, while better results will be obtained if the burning is somewhere between the temperatures of 2,000 and 2,400 deg. F. At a temperature higher than this the manganese tends to become brownish, and the blue in the gray will become lost. Moreover, the natural iron in the clay will be brought out, and this is not desirable in a manganese brick. The speckled effects, of course, are produced by using coarser manganese. The brick pass from a solid gray thru pepper and salt into speckled and spotted, and as the size of the grain of the manganese is increased. It is remarkable to what extent the spots will spread as the heat is advanced. Tiny grains of manganese hardly larger than pinheads will spread and collect into blotches if the temperature is run high enough.

Burning and Cooling Time Important

The tendency of fused manganese, or whatever the composition of the fused mass may be, is to draw up into a globule on exposed surfaces. Where the brick are faced, however, it cannot draw up, and as fusion advances must spread. The faces of hard burned brick may, or in fact will, have large spots, while the ends of the brick on which the globules could form have smaller spots.

The time of burning and cooling has material effect on the depth of color. Small "hurry up" kilns turn out lighter shades than the large kilns. The color is also lighter if

the brick are very quickly cooled. This phenomenon is also true of buff brick and of flashed brick, and is due to the difference in oxidation, and is familiar to all burners.

It is interesting to know that manufacturers of hollow tile, whose ware burns to unsightly colors, have recently tried a finely ground manganese in the composition of their ware and as a result a better shade has been produced and the product better moved in trade.



CEMENT BRICK SEPARATED FROM CLAY

Thru efforts put forth by the Common Brick Manufacturers' Association of America, the proposal placed before the American Society for Testing Materials that "cement brick should be required to have a strength midway between that required for a soft clay brick and a medium clay brick, and that a wall or pier of cement brick of this strength would be as strong as similar construction of clay brick with a strength midway between a hard brick and a vitrified brick," was defeated.



PARMELEE SUCCEEDS WASHBURN AT U. OF I.

Faculty changes of considerable moment have taken place in the department of ceramics, University of Illinois. Dr. Edward W. Washburn, heretofore head of the department, resigned; Cullen W. Parmelee, formerly a professor, has been appointed acting head of the department, and the university is seeking an additional instructor to fill the vacancy caused by these changes and to round out the instruction staff. Ralph K. Hursh, associate professor, retains his same position.

Professor Parmelee was an honor student in chemistry and graduated from Rutgers College in 1896. For a period of ten years he was director of the department of ceramics at Rutgers College, at which time he sustained important consulting positions with various New Jersey potteries. Six years ago he became a member of the faculty in ceramic engineering at the University of Illinois. Professor Parmelee has made important contributions to the literature of ceramics, has been an active member in the American Ceramic Society, and has had the distinction of serving one term as its president.

Dr. Edward W. Washburn resigned after six years as directing head of the department of ceramic engineering, University of Illinois. He was graduated from the Massachusetts Institute of Technology in 1906, and was made a doctor of philosophy

in 1908. He was associated with the department of chemistry at Illinois for eight years previous to his connection with the ceramic department. For the past year he has been editor-in-chief of the Journal of the American Ceramic Society. For four years he has been an active member of the Research Committee of the American Ceramic Society.

Dr. Washburn is unquestionably one of the country's leading scientists in physical chemistry, and has contributed valuable information and new data on subjects pertaining to ceramics. Dr. Washburn is entering a broader field of chemistry and will be located in Washington, D. C. He is to be editor-in-chief of "International Critical Tables of Physical, Chemical and Engineering Constants," and chairman of the Division of Chemical Technology of the National Research Council.



CULLEN W. PARMELEE

ADVISES AGAINST CONCRETE TILE IN PEAT SOIL

The use of concrete tile for outlet drains in farm drainage systems is not being encouraged by the Wisconsin drainage board in places where there is peat soil. In its report, recently issued, the board recommends that in such places "good shale or hard burned clay tile are preferable for the present and until the durability of concrete tile in the acids of a peat soil has been clearly established.

"There is some controversy as to the wisdom of the laying of concrete tile for outlet drains," the report continues "This division recommends that concrete tile meeting A. S. T. M. specifications and subject to the inspection of the engineer be considered on par with good shale tile, except where the peat is so deep that the tile cannot be imbedded in the underlying clay."



EXAMPLES OF UNUSUAL BRICKWORK

A Wilmette, Ill., home builder exhibits an odd feature in the building of a brick house on a prominent street corner of the suburb, shown in the two bottom views of the illustration on the following page.

The contractor following the idea of the owner has produced on the outside walls of gable and sides a roughened surface which was produced by allowing the left hand corner of a brick to stick out about an inch. The other outside corner is laid flush, but the left hand corner of the next brick protrudes in like manner and so on almost to the end of the layer. Then comes a layer all laid flush, but the next follows the protruding innovation until the most of the wall appears rough.

In the gable wall at intervals irregularly shaped hard-head stones of different sizes are imbedded in the brick work which still further adds to the rough aspect. The color of all the brick used is uniformly dull red.

The two views above show the residence of R. E. Wilcox, president of the Wilcox Co., building supply dealer of Chicago, Ill. It was built of Chicago common brick, laid in red mortar with joints raked out rough. The trimmings and soldier courses are of red Ohio vitrified face brick. Approximately 100,000 common brick and 10,000 red face brick were used in its construction. When Mr. Wilcox first built the house he intended to cover the common brick with a coat of Portland cement stucco, but on its completion he was so pleased with the appearance of the common brick that he decided not to stucco. This

(Continued on next page)



E. W. WASHBURN



The Two Views at the Top Show the Home of R. E. Wilcox, Building Supply Dealer of Chicago, Ill. It Is Built of Chicago Commons with Red Face Brick Trimmings.

Bottom View Shows a Home in Winnetka, Ill., Which Embodies Peculiar Methods in the Laying of Brick.

house cost \$35,000 to build, and was in course of construction five months. Clarence Hatzfelt, architect, designed the home, which is of a somewhat Spanish type. One peculiar feature of this house is the laundry, the walls of which are constructed of

enameled brick. It is beautifully appointed thruout.

Due to the fact that the joints of the brickwork have been raked out rough, Mr. Wilcox can at any time stucco his home, and thus have a practically new home at little additional expense.



Clay Pipe Pronounced Equal of Cast Iron Pipe in Every Way

AS A RESULT of laboratory tests made in the College of Industries of Carnegie Institute of Technology, Pittsburgh, it has finally been established that bituminous clay pipe for drainage and sewerage use is in every way the equal of the more expensive cast iron pipe which has been employed heretofore. This is an announcement of the utmost importance to manufacturers of vitrified pipe since it removes practically the only argument which cast iron pipe has been able to employ.

For years efforts have been made by manufacturers and engineers to find methods of efficient substitution of bituminous clay pipe for cast iron pipe, but without success. One weak point has invariably remained—an inability to join the lengths to prevent leakage. Practically speaking there has been but one general type of jointing material used, some variation of the ordinary building cement.

Recently various bituminous compounds have been evolved as a substitute jointing material. But the first—and numerous—tests made of these, too, failed to overcome the great weakness of clay pipe when used for drainage or sewerage.

Finally a number of these bituminous compounds were placed at the disposal of S. E. Dibble, head of the Heating and Ventilat-

ing Department of the College of Industries of Carnegie Institute of Technology. He proceeded to make painstaking and unusual tests and experiments. He not only devised absolutely new equipment with which to simulate actual drainage and sewerage conditions in the making of his tests but as a result of the tests themselves he developed an entirely new jointing practice and technique. Altogether 21 separate tests on a total of 63 joints were made, three different bituminous compounds being used.

Not only have Professor Dibble's tests established (1) that a proper bituminous compound can be used efficiently in jointing a pipe; (2) that joints made in the manner developed by Professor Dibble will stand any pressure that the pipe itself is capable of standing, without showing any leak; (3) that a pipe line so jointed can be thrown out of alignment without causing a leakage at the joints; and (4) that leaks due to poor workmanship can be repaired easily and quickly; but Professor Dibble has gone further and has published actual chemical analysis of two of the bituminous compounds found satisfactory.

Industry in a score of its important fields will immediately profit by this practical type of educational institution work.

FINE CERAMIC MANUFACTURE



A Department Devoted to Practical Problems in the Manufacture of Higher Grade Ceramic Products such as Whiteware, Including Electrical Porcelain, Floor and Wall Tile, Sanitary Ware, etc., as Well as Stoneware, Terra Cotta, Special Refractories and Other Articles Where High Grade Clays Are Employed in Their Fabrication.

OPPOSITION TO EARTHENWARE TARIFF NOT WELL FOUNDED

CONSIDERABLE PROPAGANDA has been appearing in particular eastern newspapers of late opposing the new earthenware schedule which has been proposed as a section of the new tariff bill, including such statements as that the American housewife will have to pay more for her dishes.

All this in view of the fact that evidence was presented before the Ways and Means Committee of the House when the original bill was up for hearing, showing that Oriental "teas," meaning a cup and a saucer, bought in the Orient for 50 cents per dozen were sold the American housewife at \$4.20 per dozen.

Those who have made a close study of the earthenware schedule have characterized two lengthy "stories" appearing in eastern newspapers as "pure bunk" and those who know anything about the condition within the American pottery industry readily admit of the thinness of the propaganda.

Opposition Comes from Orient

The American pottery manufacturers have seldom had a quarrel with English and French manufacturers. In fact, any discussions have always been along friendly lines. However, strong opposition to the new tariff bill has come from the Orient, and those American importing interests which are said to have Oriental connections of the strongest character.

"The whole animus of this bitter and unscrupulous fight against the china schedule of the McCumber bill is that the Japanese manufacturers and the Japanese importers fear the rich harvest of profits they have been reaping from the American public, supported by American industry, may be less abundant," declared W. E. Wells, of the Homer Laughlin China Co., of Newell, W. Va., and East Liverpool, Ohio. To quote Mr. Wells further: "When they tell the American housewife that she must pay an increase of \$12,000,000 to cover an increase of less than ten per cent. in the landed cost of china which they purchased abroad at a little over \$7,000,000 they insult the intelligence of the public they attempt to deceive.

Is Someone Profiteering

"The article states that retail prices of china will automatically increase from 10 to 20 per cent. This would be an average of 15 per cent. It also says that the increase will be \$12,000,000. Now if that sum is 15 per cent. of the retail price, then their estimate of the amount annually paid at retail for imported china is \$80,000,000. If it is actually true that the housewife must pay that much for china that cost the importer \$13,000,000 delivered in this country after payment of all duties and expenses, some one is profiteering to an amazing extent never

dreamed of in any other enterprise, even at the peak of war prices. The increased duty is only \$1,000,000. It may not be unreasonable to expect that to be absorbed along the line and leave only \$66,000,000 instead of \$67,000,000 for the profit and expense of distributing \$13,000,000 worth of goods.

"The imports of china from all countries at foreign valuation amounted for the ten months ending April 30 last in round figures, decorated \$5,300,000, whiteware only \$600,000.

"Upon that basis, the importations for the full year ending June 30 last would approximate, decorated \$6,360,000, whiteware only \$720,000. At the present rate of duty, decorated 55 per cent., whiteware 50 per cent., the total duty of both kinds will be about \$3,858,000. If the duty were assessed at the proposed Senate bill rates, of whiteware 60 per cent. and decorated 70 per cent., it would amount to \$4,884,000, or an advance over duty under present rates of \$1,026,000.

America Pays High Prices

"It has long been suspected that there is an exceedingly wide spread between the prices at which Japanese china importers declare goods for custom purposes, and those at which they sell the goods in the American market, but it is hard to believe that approximately \$1,000,000 of duty paid becomes \$12,000,000 when it is passed along to the ultimate consumer.

"Either there has been gross undervaluation, or outrageous profits by importer and retailer, or the claim of what the increase proposed in the china duty will cost the housewife, for whom the article expresses such purpose, is influencing public opinion. Upon such testimony is the case of the Japanese importer based thruout."



DEVELOPMENT IN GERMAN ELECTRIC OSMOSE

Among the recent German industrial developments the transactions of the Electro-Osmose Concern (Graf Schwerin Gesellschaft) are attracting the attention of industrial, and scientific quarters. This concern has brought the experiments which have been made to separate the particles of different materials by electric osmose to a perfection which promises at last a commercial success. The process of cleaning clay and kaolin for instance has been improved to such a degree, that a special company, the Ceramic Electro-Osmose Aktien Gesellschaft was formed by the concern at the end of 1921 with the sole object to exploit this line. Even clay of a poor quality can now be used for the finest hard porcelain and crockery after being refined by electric osmose. The original capital of the company was six million marks, which has just been increased to 100 million marks. It was stated at the shareholders meeting that the capital was needed to combine the whole ceramic interests of the Electro-Osmose concern in Germany and Czechoslovakia.

The Westerwälder Electro-Osmose Ton Gesellschaft, the Electro-Osmose Kaolin Works in Saxony, the Karlsbader Kaolin Electro-Osmose Aktien Gesellschaft and the Allgemeine Electro-Osmose Aktien Gesellschaft Karlsbad, are linked up with the new company. The Electro-Osmose Leather A. G., another company of the concern, uses the osmotic process in a

different way. Instead of separating particles, the osmose serves to drive the tanning substance into the leather. The manufactures of the company include bootleather and driving belts.

The "Bram" Ltd. company produces antitoxic serum, and two other branches of the concern are working at the Humboldt A. G. and at the Gelsenkirchener Mining Co., dressing ore and separating coal. The process of extracting ore and coal out of the wastes is of economic importance in Germany at present and receives special attention. The Osmose concern has also developed the floating process of separation, and an agreement has been concluded recently with the Mineral Separation Ltd., London, for the joint exploitation of the patents of both concerns. As the Australian Broken Hill Co., and the American Guggenheim and Anaconda groups are connected with the Minerals Separation Ltd., and Stinnes, the Humboldt A. G., and the Siemens-Rhein-Elbe-Schuckert Union are interested in the Electro-Osmose Concern, this transaction is of international importance and further developments may be expected. The Electro-Osmose Concern has not paid a dividend for the last eight years, as the process was in the experimental state. The future prospects are reported to be good.



GERMANY'S PORCELAIN INDUSTRY

Pottery business in Germany is such that new combines are being formed, factories are being extended and many millions of marks of new capital are being absorbed. In the production of porcelain, both for household and technical use, the firms specializing in this branch are finding business very much more active. In connection with the big increase in porcelain demand, the manufacturing firms are making every effort to get their costs down since porcelain prices have steadily increased since the war. With this view in mind many important mergers of porcelain producing companies are in the making. Laboratory costs are a big item and by combining, the Germans hope to reduce experimental charges in connection with research work.

In Germany just now the formation of combines in industry is popular so that it is perhaps but natural that the pottery folks have gone into the advantages accruing from unity and are showing their approval by merging one with the other wherever possible and practicable. The extent of this policy is much greater than is really known in Britain and, probably, the U. S. A. While the mergers will effect the technical porcelain trade (insulators and the like) they will have even a greater influence on household pottery.

Porcelain prices have steadily ascended. In the spring of 1920 inland prices for white porcelain were 15 times the basic price and the cost of every kilo of material was 0.51 mark. The progressive rise in manufacturing costs can be seen as follows:

	April, 1920	Dec., 1921	Jan., 1922
Cost of material, marks per kilo....	0.51	2.01	2.54
Molders' and turners' wages,			
marks per kilo.....	0.61	1.71	1.95
Burning, marks per cubic meter....	2.23	3.20	3.77

Selling prices have advanced with production costs—to an even greater extent. Early this year the selling price in the porcelain industry was 30 times the basic price, but this has affected the export trade. In pre-war days 60 per cent. of German porcelain production was purchased by foreign countries. Now, the exportation of this product is down to 28.4 per cent. The export figures for porcelain made a spurt last March, particularly in technical porcelain, and it is thought the export trade from Germany may improve steadily in relation to increased demand and extension of works.



POTTERY BUYING INCREASING GREATLY

There will be no general suspension of activity in the generalware potteries of the Eastern Ohio territory this summer. The

Fourth of July holiday was brief, some shops announcing inactivity for only one day—the fourth, while others remained idle from July 1 until July 5.

The briefness of the summer loaf is due solely to the increased activity in buying. There has been a decided improvement in the condition of trade during the last few weeks, the dullness that had been experienced for several months having almost entirely disappeared.

Idleness in the potteries in the Eastern Ohio district will of course vary, but so far as can be learned, all shops resumed active schedules July 11.

Some departments ceased work Friday, and resumed the following Friday, July 7. In other instances, work was suspended Saturday, and the idle period extended until July 11, or one full week.

In some particular cases, July 4 was the only holiday, and here and there some plants closed Saturday and resumed July 5.

During the extended idle period, plant repairs will be made and semi-annual inventories taken. Stocks are not excessive in any particular plant, as practically all manufacturers have been operating mostly on orders thruout the first two quarters of the year.

Taking the generalware pottery trade as a whole into consideration, a very happy situation exists. The upward trend can be observed on all sides. Fall buying has started, and for several weeks past such business has been received by manufacturers. This volume added to that now on file is claimed to be sufficient to cause active operation in practically all plants for months to come, and considering the situation in other lines of industry, the pottery industry has fared exceedingly well—far better than many others.

The tendency on the part of many buyers to order in more liberal volume is now noticeable. Merchandise managers have been holding back china department buyers, and have been confirming orders for only nominal volume. The pressure is not so great now, and a little more freedom is being given buyers in placing their orders.

During the last fortnight many buyers who had business on file for late June shipping, advised manufacturers to hold up shipments until July 1, so that advantage could be taken of the new freight tariff which became effective that date. The bulk of these shipments were for the western trade, and the saving to the buying interest represents no small item, collectively.

With the receipt of new business and a brief July loaf, the generalware industry seems to be in a very healthy state.



CHICAGO POTTERY BUILDS PLANT

Announcement has recently been made of the building of a two-story factory. The plant will be the home of the Chicago Pottery Co. and is located at 1926 Clybourne Avenue.



ORGANIZE POTTERY AT MORTON, ILL.

Cliftwood Potteries, Inc., Morton, Ill., have been organized by Mathew, John W., and Sarl M. Rapp. Capital stock is \$60,000. The concern manufactures and deals in earthenware, pottery and other ceramic products. Evans Galbraith, Sutherland & Evans, Lehman Building, Peoria, is correspondent.



STUDYING KAOLINS IN NORTHWEST

The United States Bureau of Mines, in cooperation with the University of Washington, will undertake an investigation of the residual kaolins and feldspars of eastern Washington and northwestern Idaho for whiteware bodies. The work to be

done will follow the lines of the kaolin investigations now under way at the ceramic experiment station at Columbus, Ohio. The work will be done in the new mines laboratory of the University of Washington at Seattle.



PUBLISH BEAUTIFUL BOOK ON BARYTES

A beautifully illustrated book containing "The Story of Barytes" has been published by the DeLore Baryta Co. and the J. C. Finck Mineral Milling Co., St. Louis, Mo. The book tells where and how baryta are found, and their importance in the world's industry. The text of the book was prepared by Allen W. Clark, editor of the American Paint Journal and American Paint and Oil Dealer. The illustrations are drawings and paintings, the latter in full color, from life in the foothills of the Ozark Mountains, Washington County, Mo. The illustrations were executed by O. E. Beringhaus, said to be America's foremost portrayer of western life and scenes.



TO ERECT KILN BUILDING

The Unitco Pottery Co., Frazier Street, Trenton, N. J., will erect a new kiln building at its plant.



C. B. HARROP VISITING EUROPEAN PLANTS

Professor Carl B. Harrop, consulting engineer and ceramic engineering instructor at Ohio State University, Columbus, Ohio, sailed on June 24 for England, where he will investigate tunnel kilns and operating conditions in the British factories. He will also spend some time in this same connection in France and will be gone for about a month.



GUERNSEYWARE CO. CONTINUES TO OPERATE

J. E. Thompson, receiver for the Guernseyware Co., Cambridge, Ohio, manufacturer of vitrified hotel chinaware, will continue the plant in operation, and no change will be made, it is said, in the present working arrangement. An effort will be made to secure a new factory manager, thoroly experienced in this line of production.



PLANS PRODUCTION OF FELDSPAR

The Basin Quarries, Inc., Portland, Me., recently organized, is planning for the operation of extensive feldspar properties at Phippsburg, for the production of material for pottery manufacture and other service. The company has a tract totaling about 100 acres, and will install a large plant. Joseph F. Perry is president.



CONVERT CRUCIBLE PLANT INTO ART SHOP

Kiss Brothers, Meriden, Conn., manufacturers of pottery specialties, have acquired the plant and property of the Joseph Dixon Crucible Co., at Hamden, Conn., including a tract of adjoining clay lands. Immediate possession will be taken and equipment installed for a branch works, for the manufacture of lamp bases and other art pottery goods.



WILL MANUFACTURE MANTEL TILE

The plant formerly known as the Coast Brick Co. at Richmond, Cal., has been taken over by the Hyslop-Meyer Co., and the manufacture of glazed tile for mantels has been started. Most of the tile is made to architects' speci-

fications. The new owners are experienced men in the clay industry, Meyer having formerly been superintendent of the California Brick Co. at Livermore. It is said that this plant is the first of its kind in the northern part of the state, this tile heretofore being shipped from Los Angeles.



CLINCHFIELD WILL BUILD NEW PLANT

The Clinchfield Pottery Co., Marion, N. C., is planning for the erection of a new plant for the manufacture of earthenware specialties. Work will be placed in progress at an early date. A list of equipment to be installed is being arranged. A. W. Hilton is manager.



KNOX PORCELAIN INCORPORATED

The Knox Porcelain Co., Wilmington, Del., has been organized under state laws with capital of \$370,000, to manufacture porcelain and affiliated ceramic products. The company is represented by the Corporation Trust Co. of America, du Pont Building.



BUILDS RAILROAD FOR FELDSPAR MINES

To develop greater activity and production in the feldspar mining district, near Thirteen Island Lake, Kingdon, Ont., the Canadian Pacific Railway Co. will build a new branch line to these parts. Work will soon be commenced.



WORKING ON GEORGIA CLAYS

The Central of Georgia, with the help of the United States Bureau of Mines, is endeavoring to work out the following two problems: (1) The better refining of the kaolins for pottery, tile, enamel ware, and the filler trade, and (2) the use of Georgia bauxitic clays for refractory purposes.



NEW CHINA PLANT IN BALTIMORE

The H. P. Chandlee Sons Co., 112-14 West Lombard Street, Baltimore, Md., has been formed under state laws with a capital of \$200,000, to manufacture chinaware and other pottery specialties. The company is headed by George M. Chandlee, Theodore M. Chandlee and Jesse Englar.



NEW JERSEY CLAY PRODUCTION LESS IN 1921

Production of raw clay in New Jersey, the leading clay-producing state, during 1921 decreased both in quantity and value from the high points reached in 1920 and 1919, according to figures compiled by the State Department of Conservation and Development in cooperation with the U. S. Geological Survey.

A total of 263,178 short tons valued at \$1,049,748 was produced in the State in 1921 while the corresponding figures for 1920 were 354,613 short tons valued at \$1,656,867. These figures represent only those clays which are mined and sold as clay, and not those which are mined and used directly by the manufacturer.

Ball clay alone showed an increase. The 1921 tonnage of 8,230 short tons was 65 per cent. greater than that of 1920; the value of the yield for 1921 is placed at \$62,638, while that for 1920 was \$43,157.

Other clays included in the raw clay group together with the 1921 figures are: fire clay, 195,572 short tons valued at \$842,257; stoneware clay, 16,354 short tons valued at \$71,919; and miscellaneous clays, 43,022 short tons valued at \$72,934.

Current Prices of Common Building Brick Six Inch Drain Tile and Hollow Building Tile

REPORTS received by the Common Brick Manufacturers' Association during the last month regarding the steadiness of common brick prices are borne out by this month's list of prices in the 84 cities listed below. Changes were reported in only 13 cities. The majority of these changes were upward, in some instances a substantial increase in price being effected. Boston records a raise of \$7. The New Orleans price was raised to \$12, making it even with the Chicago price.

Prices of six-inch drain tile were unusually stable, the only

change of note occurring in Baltimore, where the price receded two cents from the price of 16 cents, formerly asked.

The increased demand for hollow tile as a result of the wonderful building activity in recent months has resulted in a slight advance in price of that commodity. This month's price list shows that nine cities have raised their quotations. Most of these increases were only small, except in the case of Wheeling, W. Va., where the price was raised from \$65 to \$85. Oklahoma City recorded a decrease of \$5, and is now asking \$80.

	Common Brick Per M	Drain Tile (6") Per Ft.	Hollow Tile (5x8x12) Per M		Common Brick Per M	Drain Tile (6") Per Ft.	Hollow Tile (5x8x12) Per M
Portland, Me. ....		.15		El Paso, Tex.	16.00	.....	81.00
Boston, Mass.	24.00	.2025		Houston, Tex.	18.00	.16	86.00@
Providence, R. I.	26.00	.20		Dallas, Tex.	11.15*	.20	75.00
Hartford, Conn.	16.00	.14		Little Rock, Ark.	12.50*	.15	
New Haven, Conn.	23.00	.125		Oklahoma City, Okla.	14.75	.055‡	80.00
New York City	24.00	.....	123.00	Cincinnati, Ohio.	16.00*	.09	68.00
Albany, N. Y.	20.00	.155	200.00	Cleveland, Ohio.	14.00	.072	65.00
Utica, N. Y.	18.00	.0675		Columbus, Ohio.	16.50	.08	
Syracuse, N. Y.	18.00	.125		Toledo, Ohio.	16.00	.075	85.00
Oswego, N. Y.	25.00	.....		Detroit, Mich.	16.00	.12	97.90
Binghamton, N. Y.	16.00	.105		Evansville, Ind.	14.00	.04	55.00
Elmira, N. Y.	25.00	.10		Fort Wayne, Ind.	16.00	.07	70.00
Rochester, N. Y.	16.50	.11		Indianapolis, Ind.	17.00	.10	76.50
Buffalo, N. Y.	18.00	.12	65.00	South Bend, Ind.	19.00	.04	100.00
Jamestown, N. Y.	25.00	.....	110.00	Terre Haute, Ind.	15.00	.....
Allentown, Pa.	20.00	.....		Bloomington, Ill.	18.00	.08	75.00
Erie, Pa.	20.00	.095	80.00	Chicago, Ill.	12.00	.10	75.00
Philadelphia, Pa.	17.00	.....		Moline, Ill.	18.00	.11	75.00
Reading, Pa.	19.00	.....		Peoria, Ill.	14.00	.11	53.00
Pittsburgh, Pa.	16.00	.12	92.00	Green Bay, Wis.	14.00	.08	85.00
Scranton, Pa.	23.00	.14		Milwaukee, Wis.	15.00	.08	85.00
Newark, N. J.	23.00	.1675	100.00	St. Paul, Minn.	16.00	.09	75.50
Paterson, N. J.	20.00	.17		Davenport, Iowa.	17.50	.09	
Trenton, N. J.	17.00	.....		Des Moines, Iowa.	17.00	.12	75.00
Wilmington, Del.	22.00	.....		Sioux City, Iowa.	16.50	.....	75.00
Washington, D. C.	19.00	.10	160.00	Kansas City, Mo.	16.50	.0625	
Baltimore, Md.	19.00	.14		St. Louis, Mo.	14.00	.175	65.00
Norfolk, Va.	16.00	.12		Lincoln, Neb.	16.50	.09	70.00
Richmond, Va.	16.00	.15		Denver, Colo.	12.00	.....	85.50
Huntington, W. Va.	15.00	.12	75.00	Butte, Mont.	17.00	.....	15.00\$
Fairmont, W. Va.	24.00	.095	75.00	Los Angeles, Calif.	15.00	.0975*	100.00\$
Wheeling, W. Va.	20.00	.09	85.00	San Diego, Calif.	14.00	.14	120.00
Atlanta, Ga.	12.35	.11		San Francisco, Calif.	17.00	.065	108.00
Miami, Fla.	23.50	.....	95.00	Portland, Ore.	17.50	.10	95.00
Tampa, Fla.	15.00	.....	120.00	Seattle, Wash.	15.00	.09	110.00
Louisville, Ky.	18.00	.07	79.00	Cheyenne, Wyo.	20.00	.....
St. Petersburg, Fla.	17.00	.....	95.00	Winnipeg, Man.	18.00	.15	105.00
Lexington, Ky.	19.00	.11	80.00*	Toronto, Ont.	18.00	.11	
Memphis, Tenn.	13.50	.09	75.00	Halifax, N. S.	21.50	.....
Nashville, Tenn.	14.00	.11	75.80	Quebec, P. Q.	19.50	.115	
Birmingham, Ala.	15.50	.....	67.40				
New Orleans, La.	12.00	.12					

Editor's Note.—The prices of the commodities listed above are reported as delivered on the job, and are, therefore higher than the plant prices. These prices are obtained from a sister publication, Building Supply News, and are sent to this paper by dealers in the various cities listed. Brick and Clay Record will appreciate any corrections. The prices marked in heavy type denote changes from last list.

*Little Rock, Cincinnati, Los Angeles, Atlanta, Lexington Dallas, f. o. b. cars.

\$Los Angeles, Heath tile; Butte, per ton at yard.

@Hollow tile, Houston, car loads.

†Quebec, common brick, f. o. b. sheds.

‡Drain tile, Oklahoma City, four inch.

The Superintendent

Helpful Hints for Practical Men
Whose Problem is Maximum
Production with Minimum Cost

A HANDY PIPE FLOW CHART

We often want to know the velocity of flow thru a pipe of given diameter, and, we want to know quickly. Or, we want to know the cubic feet of liquid or gas flowing thru the pipe per minute, the gallons per minute, or the pounds of water per minute.

All of these quantities are dependent, of course, upon the size of the pipe, and since pipe sizes vary, standard pipe not being exact in internal diameter and extra heavy pipe being different also it is always necessary to search thru tables and make lengthy calculations before arriving at the result. And then, after a result is arrived at one is not certain that the answer is correct.

Here is a chart that takes care of all of these matters in a decidedly simple way. The best way to explain the use of the chart is to give a problem. First, it will be observed that there are three sets of figures given in connection with the left hand column which I have called Column A. The left hand column of figures, marked "No. 1, Standard," gives the actual internal diameters of standard pipe. This column shows, for example, that the internal diameter of a 1" standard pipe is somewhat greater than 1".

The column of figures marked "2 Exact" gives the exact

diameter. Thus, if we have a pipe the internal diameter of which is exactly 2" as used in the problem which is cited below, we use this column of figures.

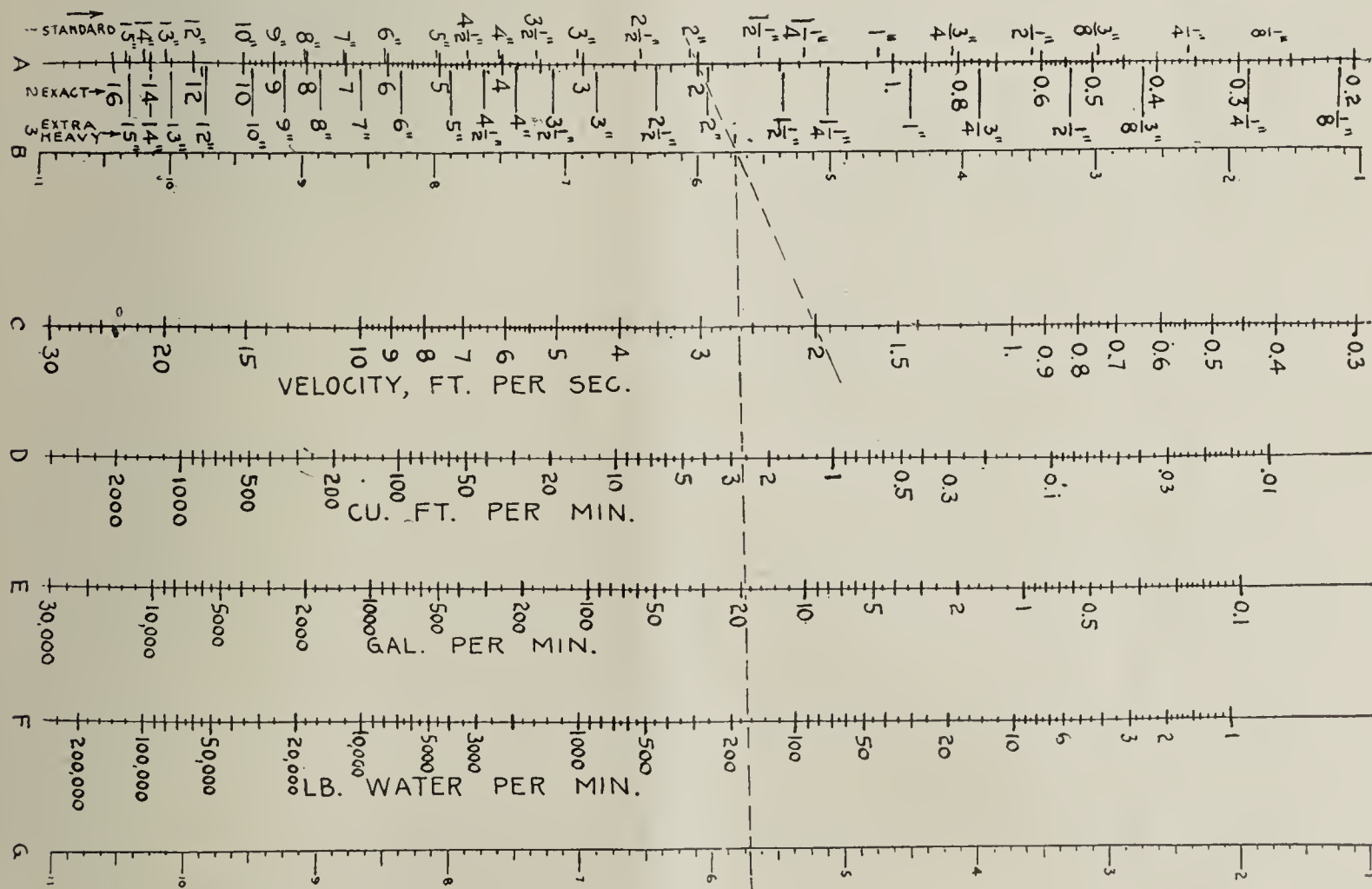
The right hand column of figures marked "3 Extra Heavy" gives the actual internal diameter of extra heavy pipe. This column shows that the actual internal diameter of 1" extra heavy pipe is less than 1".

For example, how much water is passing thru a pipe, the internal diameter being exactly 2" and the velocity of the water being 2 ft. per second?

Locate the 2 in Column A over the word "exact" and from its point of intersection run a straight line through the 2 ft. per second in column C as shown by the dotted line. This straight line intersects Column B. From the point of intersection in Column B, run a straight line over to the similar point in Column G, also as shown by the dotted line. The intersection of this perfectly horizontal line from Column B to Column G, gives answers simultaneously in three columns—Column D, E, and F. It shows that:

2.6 cu. ft. per minute are flowing thru the pipe. (The correct amount is 2.615 cu. ft.)

A trifle over 19 gallons per minute are flowing thru the pipe. (The correct amount is 19.58 gal.)



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A Useful and Handy Pipe Flow Chart.

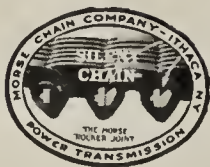
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BOSTON

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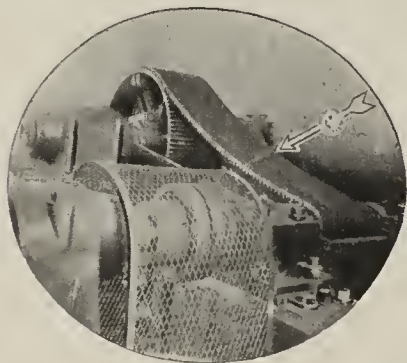
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TORONTO

WINNIPEG, MAN

CHARLOTTE, N. C. CHICAGO CLEVELAND KANSAS CITY, MO.

About 165 pounds of water per minute are flowing thru the pipe. (The correct amount is 163 lb.)

• This shows that the chart is very accurate, surely accurate enough for all practical purposes.

It is evident, now, on studying the chart, that if the pipe were a two inch "standard" pipe instead of exactly 2 inches, the horizontal line from Column B to Column G would be slightly lower and the three quantities would be slightly greater.

On the other hand it is also evident that if a 2 inch extra heavy pipe were used instead of the 2 inch exact, the horizontal line from Column B to Column G would be raised slightly above its present position and the three quantities would therefore be slightly less.

Inversely, if any quantity in Column D, E or F is known and it is desired to determine the velocity per second flowing thru the pipe, this same chart can be used with equal ease. First run the horizontal line from Column B to Column G thru the known point and then thru the located intersection in Column B, run a straight line from the known pipe diameter and the intersection with Column C immediately gives the velocity in feet per second.

Or, if one wishes to select a pipe size, knowing any one of the quantities in D, E or F and having decided upon the velocity of flow, it is perfectly evident what to do.

At the same time it will be noted that this chart can be conveniently used as a conversion chart. For example, how many gallons in 2.6 cu. ft.? The dotted horizontal line already drawn shows that the answer is—slightly over 19 gallons which is also equivalent to about 165 pounds of water. At the same time this chart gives a visual demonstration of the relationship of pipe sizes—standard, exact, and extra heavy. By using this chart one can quickly "read off" the correct internal diameter of a standard or extra heavy pipe.

The range of this chart has been made great enough to take care of almost any problem dealing with water, the standard pipe sizes ranging from $\frac{1}{8}$ " to 15" and the velocities from 0.3 to 20 ft. per second.

Should anybody prefer to use formulas rather than this chart either for solving the problem directly or for checking the results taken from the chart, here are the formulas on which the chart is based:

$$Q = 2.45 d^2 v$$

where Q = gal. per min.;

d = internal diameter inches;

v = velocity, ft. per second.

$$\text{Cu. Ft. per minute} = 0.327 d^2 v$$

$$\text{Lb. water per minute} = 20.4 d^2 v$$

By W. F. Schaphorst

✻ ✻ ✻

STARTS AFTER TWO IDLE YEARS

Idle for two years the Dennison Fire Clay & Brick Co.'s plant, $1\frac{1}{2}$ miles east of Dennison, Ohio, resumed operations June 8, under a change of ownership. The product of the plant is brick.

John Scott, Midvale, one of the two new owners of the plant, expects to convert the two large kilns, each of 250,000 brick capacity, into eight smaller kilns each to have a capacity of 60,000 brick. In addition to the two large kilns at the plant there are two smaller ones each of 75,000 brick capacity.

Walter Moore, Uhrichsville, formerly superintendent of the Diamond Sewer Pipe works of the American Sewer Pipe Co. and of the Royal plant at Midvale of the Robinson Clay Products Co., is the owner of the plant. Scott and Moore purchased the plant from C. A. Albaugh, Cleveland, a trustee for creditors, who had purchased it from Roy Cummings, trustee in bankruptcy.

USE "Brick and Clay Record" Classified Ad Columns because you'll get quick action.

Published every other Tuesday, it's the **newspaper** as well as the journal of the clay-products industry.

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Eight cents per word for first insertion; six cents per word for each additional insertion.

BRICK AND CLAY RECORD

In the Wake of the News

Being Brief Mention of a Host
of Interesting Happenings in the
Varied Fields of Clayworking

C. J. DECKMAN DIES OF HEART FAILURE

Charles J. Deckman, for 30 years a member of the ceramic fraternity, and one of the industry's well known figures died suddenly at his home in Cleveland, Ohio, on Monday, June 26. Mr. Deckman died of heart failure.

Since his association with the industry 30 years ago Mr. Deckman's life has been one continuous round of service to his fellow clayworkers. He was the founder of the Malvern (Ohio) Fire Clay Co. and connected many years with the



CHARLES J. DECKMAN

Deckman-Duty Brick Co., manufacturers of paving brick. When Mr. Deckman retired from active business five years ago he was vice-president and secretary of the Medal Paving Brick Co. of Cleveland.

Mr. Deckman was prominent in the clay industry thru his association with the National Paving Brick Manufacturers' Association and National Brick Manufacturers' Association. As member of the N. P. B. M. A. he was accorded the signal and unusual distinction of being elected to the office of president four consecutive years. During the four years under his leadership the association grew and prospered and became one of the leading societies in the ceramic industry. He was offered a fifth term but asked to be excused. Mr. Deckman also held the office of president of the N. B. M. A.

Mr. Deckman's death will be sincerely mourned by the industry with which he was so closely associated for many years. He leaves his widow and a son, Charles G. Deckman, who is connected with the Medal Paving Brick Co. The body was interred at Lakeview cemetery, Cleveland.

F. H. SCHWETYE LEAVES LACLEDE

Fred H. Schwetye has resigned his position with the Laclede-Christy Clay Products Co., St. Louis, Mo., and has accepted the



Dryer, Transfer and Clay Cars,
with Flexible Bearings.
Switches, Turntables and Track.
THE CHASE FOUNDRY & MFG. CO.
COLUMBUS, OHIO

CHASE

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BRICK
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CHEMICAL CO.,
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TRENTON
NEW ORLEANS
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Clay Digger**

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a ton interest you?
That's all it's costing
many Buckeye users to
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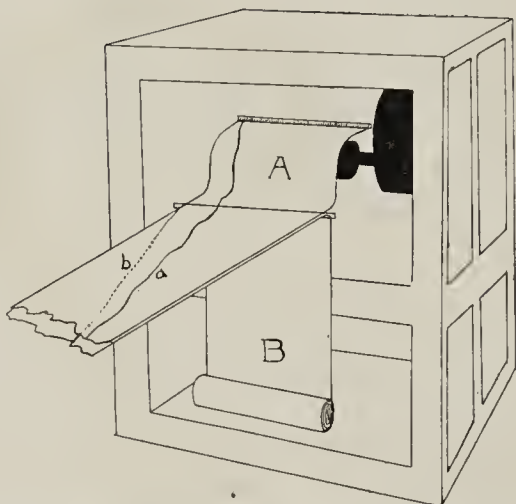
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Tulsa, Okla.

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Chatham, Ont.
Chicago

Los Angeles
Norfolk, Va.
Mason City, Ia.
Salt Lake City



Standardize Your Burns

Determine what is the proper speed at which kilns should be burned. Plot this as a time temperature on a roll of paper mounted like "B" in the illustration above. Mount this so that it can be moved backward and forward.

Then the record of every kiln as shown on "A" can be placed over the standard time temperature curve and a glance will tell whether or not, the kiln is being burned too slow or too fast.

The result will be that the fireman without any knowledge of the mechanism of pyrometers will be able to burn a kiln with a minimum of fuel and a maximum of quality ware.

Ask for details

Wilson-Maeulen Co.
738 E. 143rd St. New York

position of secretary of the Grand View Fire Clay Co., also of St. Louis. Mr. Schwetye was in the employ of the Laclede-Christy Clay Products Co. for 16 years, the last four years having filled position as general superintendent of the Christy and Laclede plants. In his new position Mr. Schwetye will be in charge of mines and plant of the Grand View Fire Clay Co., which is preparing special clay mixtures for the glass house, zinc and foundry trades, and high grade refractory materials.

J. T. COLAFLOWER SUCCUMBS TO ILLNESS

John T. Colaflower, 76 years old, one of the pioneer brick manufacturers of Missouri, died at his home in Sedalia from a complication of ailments, with which he had been suffering for several years. Mr. Colaflower was engaged in manufacturing brick until 1888, when he joined the contracting profession.

DICKEY'S DAUGHTER TO MARRY

Walter Simpson Dickey, the well-known clay manufacturer and newspaper publisher of Kansas City, has announced the engagement of his daughter, Miss Madeline, to Marion B. Sharp, son of Dr. and Mrs. Benjamin T. Sharp. The wedding will take place in autumn.

H. J. EMMINS VISITS CLEVELAND

H. J. Emmins, secretary-manager, the Texas Brick Manufacturers' Association, was a visitor in Cleveland, Ohio, recently, and while here, made his headquarters at the Common Brick Manufacturers' Association of America. He reported that practically every manufacturer in his territory has plenty of orders, and that building activity thruout the Southwest is advancing steadily.

GREENOUGH GETS JOB AS BOSS OF EXHIBITS

Maurice B. Greenough, secretary of the National Paving Brick Manufacturers' Association, is acting as chairman of the sub-committee on exhibits for the American Society for Municipal Improvements. This society will hold its 1922 meeting at Cleveland, October 2 to 6 inclusive, in the Hollenden Hotel. In conjunction with the meeting, an exhibition has been arranged for, with space for 63 exhibits. Mr. Greenough has been placed in charge of these exhibits.

SHIP MANY ALABAMA BRICK TO CUBA

Reports of industrial operations in Alabama the latter part of June, advise that all of the brick plants thruout the state are now at close to capacity operation, with plenty of business in hand to insure steady operations for some months to come. Considerable quantities of Alabama made brick are being shipped to Cuba, this business during June exceeding that of any month in the past year.

UNITED REFRACTORIES TO OPEN SOON

The United Refractories brick plant at Islay Road, San Luis Obispo County, Cal., which closed down a few weeks ago, is to reopen soon under a new company and on a larger scale.

ADDING MUCH EQUIPMENT

Manager E. A. Forde of the California Pottery Co. at Merced, Cal., reports that the four kilns are now operating continually. The machinery for the roofing tile has arrived and will immediately be placed in position. To the dryers seven new tunnels are being added. 200 new cars for transporting the product from the molding machine to the kilns are on their way. \$40,000 worth of pipe machinery is on the ground, awaiting building and installation and the building of the remaining kilns. Plans are also ready for the building of a big plant to manufacture common brick; and for other units to make this the largest

plant on the Pacific slope. To assist in these enterprises the company is placing on the market \$80,000 more of the treasury stock.

The new Steiger-Vallejo Clay Products Co. of California has gone over the top in its drive for stock subscriptions, and is now busy cleaning up the old plant preparatory to starting operations.

CONNECTICUT COMPANY INCORPORATES

The American Brick Co. of Berlin, Conn., a \$75,000 corporation, has organized with the following officers, according to papers filed with the Connecticut secretary of state: President and treasurer, George A. Pickett; vice-president, Maude F. Pickett; assistant treasurer and secretary, Edgar M. Pickett.

ORGANIZE COMPANY IN CHICAGO

It is reported that a new Chicago concern to be known as the H. M. Thompson Co., Inc., 105 W. Monroe St., has been organized to manufacture and deal in fire brick and building materials. The company is capitalized at \$25,000, and headed by H. M. Axel T. and Frank Thompson. J. Willis Dix, 940, 10 S. La Salle St., is named as correspondent.

CONKEY CHANGES IOWA REPRESENTATIVE

Two important changes have just been made by H. D. Conkey & Co., Mendota, Ill., in its Iowa and Chicago offices. Ray G. Ellingen leaves the Iowa territory to take charge of the face brick department of the Chicago office in the Chamber of Commerce Building. John D. McHugh, formerly of Kalamazoo, Mich., will represent the company in Iowa. He will be located at 415 W. Mullan Ave., Waterloo, Ia.

REORGANIZES BIPPUS TILE CO.

H. V. D. King, of Goshen, Ind., formerly secretary of the Goshen Chamber of Commerce, has reorganized the Bippus Tile Co., near Huntington, Ind., under the name of the Bippus Clay Products Co. It is capitalized at \$55,000. The new company will add 36 acres to the 30 acres of clay owned by the old concern. H. G. Simpson, of Middlebury, purchased the Bippus Tile Co. Associated with him in the reorganization, in addition to Mr. King, is John H. Sell.

FT. DODGE PLANT BACK UNDER OLD OWNERS

The plant of the Fort Dodge (Ia.) Brick & Tile Co. has been taken over by the old company with J. H. Abel president. This company sold the plant to other parties a few years ago, and has just resumed control for the manufacture of high grade brick, tile, and hollow blocks.

ERECTS PERMANENT EXHIBIT

The Coffeyville (Kan.) Brick Co. has a permanent exhibit of its product displayed on Garrison Avenue in the shape of a brick wall about 50 feet long and five feet high, in which a dozen different faces of brick are used. A shingle roof covers the wall, forming an attractive and comprehensive exhibit.

EXPECT BIG ORDERS TO DEVELOP

The P. Bannon Pipe Co., Louisville, Ky., reports active demand for plumbers' sizes of sewer pipe, for connection from house to sewer, but there is a smaller demand for the larger sizes, which have been slow for a couple of weeks. However, it looks as if there will be some developments in the local two million dollar sewer bond work shortly, and a lot of road contracts were let recently, while street construction is also picking up.

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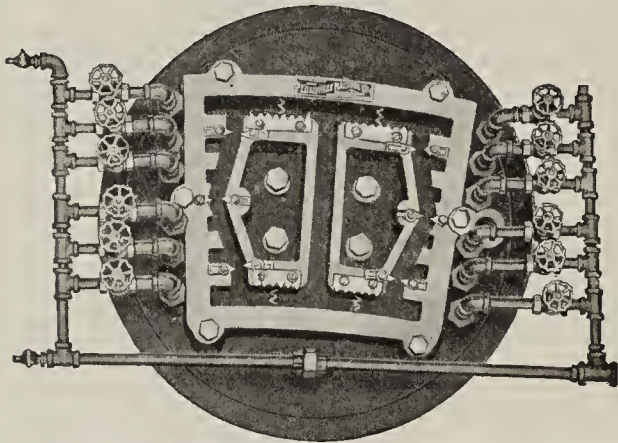
The die shown here is one of the many intricate dies we furnish to the industry.

It is used for manufacturing Wiederholdt Chimney Tile.

We also manufacture dies for hollow ware, fireproofing, brick, etc., and for many special purposes.

Information concerning our equipment gladly sent upon request.

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Our recommendations for your particular problem would not obligate you in any way.

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REPORT OLD SEWERS CAVING IN

Investigation of a number of caveins of old sewers in Louisville, Ky., of late, show that they are old masonry sewers which have done service for a half to a quarter of a century. In most cases their capacities have been overloaded of late, and other material has been giving away, whereas the brick work looks as good as new. One bad cavein a few days ago caught a large truck, which went in radiator first, but without hurting either of the two men in the cab.

LOUISVILLE SEWER SPECIFICATIONS HARSHIP ON VITRIFIED PIPE

A .P. MacDonald, of the P. Bannon Pipe Co., remarked recently that methods of the city engineers at Louisville had been a little against glazed or vitrified sewer pipe, in that specifications for setting such pipe, as now used, are calling for a saddle of concrete, six inches thick, extending half ways of the diameter of the pipe, resulting in an increase of at least 25 per cent. in the cost of laying sewers with vitrified pipe.

New sewer work, under the Louisville Sewer Commission, to cost between \$2,000,000 and \$3,000,000 is also being held, pending outcome of differences of contractors and sewer commission, the contractors refusing to bid on the specifications as now written, claiming that the same specifications bankrupted several contractors a few years ago, and prevented others from making money. Under the specifications the contractor stands all dangers of losses, while some parts of the specifications do not set forth clearly what is to be done under certain conditions, and could result in the contractor being held liable. However, the wrinkles are being ironed out, and contracts should come out shortly. The sewer work is expected to create a very good demand for pipe.

MARYLAND COMPANY BUILDING ADDITION

The recently organized New Brick & Tile Co., Moreland Bldg., Easton, Md., is completing plans for a one-story plant, estimated to cost \$50,000. O. Fletcher Clarke is secretary and treasurer.

FIRE DOES CONSIDERABLE DAMAGE

Several thousand dollars worth of damage was done to the plant of the Conococheague Brick Co. at Williamsport, Md. by fire. The fire started from sparks from one of the kilns, and quickly consumed the shed, spreading to the adjoining kiln. The fire was the second one that has occurred at the plant. The property was partly covered by insurance.

ESTABLISHES BRANCH OFFICE

Charles M. Field, 293 Bridge Street, Springfield, Mass., operator in face brick, common brick and other burned clay products, has established new offices and showrooms at 45 Gold Street, Hartford, Conn., where a full line of material will be carried. Large contract work is being secured in this district, and production of Connecticut yards is being used.

GIVES CHILDREN PLAYGROUND

The Hydraulic-Press Brick Co. of St. Louis has loaned to the community for an indefinite length of time a large tract of land occupied by the Benton Community Playground, which was recently opened in that city. This playground is the first of its kind in that city, and was sponsored by the parents' clubs of the Benton School.

USE CLAY PIT AS MUNICIPAL POOL

It is expected that one of the abandoned clay pits of the Fulton (Mo.) Fire Brick Co., which has become filled with water,

will again serve as the bathing beach of the Fulton swimmers, who are without a municipal pool in which to disport. The fire brick company has permitted the use of this pool free of charge for several years and it proves a popular place, hundreds of persons going there yearly.

MAKES CHANGES IN PERSONNEL

W. O. Peters, who has been superintendent of the New Florence (Mo.) Brick Plant for two years, has resigned his position. He has not announced his future plans.

J. A. Dixon who has been connected with the New Florence company as assistant manager almost since it started operations here has been elected manager and has assumed his duties. He has been one of the most faithful workers at the plant and also is regarded as a high-class brick man, so that it is expected that the business of the firm will be taken care of in an efficient manner and that the output will continue to enlarge.

DEVELOPING CLAY AND COAL LANDS

W. M. Summers of Kansas City, who owns a tract of 3,000 acres of coal and clay land in Callaway County, near Wainwright, is making arrangements to develop the property. The company he heads is purchasing new machinery, including a steam shovel, and expects to begin operations sometime in July. According to Summers the concern expects to work out 50 tons of coal daily by the first of July. About 35 men will be employed at the start. There is a fine quality of fire clay over the coal vein and this will be shoveled aside by the steam shovel and later the fire brick plant will be established and the clay thus secured used in this plant.

GREEN TO OPEN NEW MINES

The A. P. Green Fire Brick Co. of Mexico, Mo., has made a request of the city council that Third Street in Hopkinsville, a suburb of Fulton, Mo., be closed, and it is expected that the request will be complied with. The street is narrow, being only 16 feet wide and is only two blocks long. The fire brick company owns all of the property in the two blocks and expects soon to sell the houses at public auction and mine the clay that is under the lots. It will be shipped to the Mexico plants of the company and manufactured into fire brick.

If business continues as good as it has been for the past two or three months the Josephine plant of the A. P. Green company, which has not been in use for some time, will be opened again and fire brick produced there within the next month or two. In preparation of this a new smokestack is being built in connection with the boiler room and repairs such as are necessary after a plant has been idle for a long period are being made. A continuance of the present good business would mean that the stock of fire brick now on hand will become so low that what is produced at the main plant at present will not be enough to replace it and some product of the Josephine plant will be needed also.

ST. LOUIS CLAIMS MODERATE PRICES

There is no impending shortage of brick in the district embracing Missouri, Kansas, Iowa, Nebraska, Minnesota and North and South Dakota, according to F. C. Ashemeyer, general sales manager for the Hydraulic-Press Brick Co., St. Louis, which firm is the largest manufacturer of face brick in America. Mr. Ashemeyer is of the opinion that if the national coal strike is prolonged the situation will change. In respect to supply the district is better off than any in the country.

In recent weeks extensive building operations have gotten under way in the district and there has been a marked increase in the number of brick houses started, especially in St. Louis.

Prices of brick in St. Louis, according to Ashemeyer are

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FROM PIT TO OFFICE our service assures maximum quality production from each department thru eliminating losses and speeding up your PRESENT EQUIPMENT.

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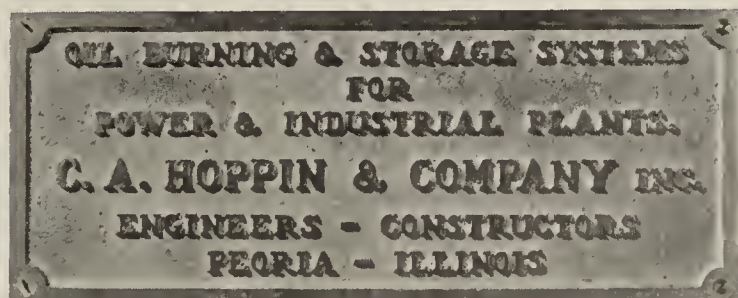
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---and NOW WHAT WILL YOU DO FOR FUEL?

In a news item published in the June 13 issue of BRICK & CLAY RECORD, it was told how an Ohio Brick Manufacturer cut his costs, improved the quality of his ware, and obtained all around better results by installing an oil burning system.

You can effect the same savings in your plant by installing an oil burning system.

Specify C. A. Hoppin & Company Equipment

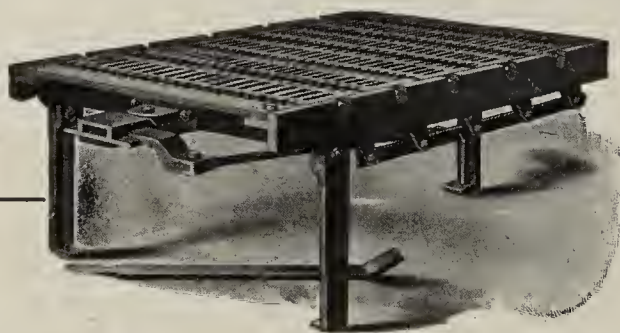


ELIMINATION OF LOSSES DUE TO KILN GRATE TROUBLES, is the result when CANTON GRATES ARE INSTALLED

Canton Grates will save you about one-fourth on your fuel bills. They will enable your operators to attain and maintain temperatures without excess use of fuel.

It won't cost you to get complete information today and it may mean profit for you. It has to many others.

Write us



The Canton Grate Co.
1709 Dillon Place, CANTON, O.

The Minter System *Columbus, Georgia*

WHAT WE DO BUILD COMPLETE PLANTS OR ANY PART

Nine of our Kilns will produce as much as 15 Kilns burned periodically—any product—any fuel. **Saving first cost of six Kilns.**

Ten of Our Recirculation Drier Tunnels will dry as much as fifteen old line tunnels. All ware dried evenly without strains. No loss, wrecks or other delays. **Saving first cost of 6 tunnels and equipment.**

Kilns and Drier can be adjusted to the highest speed that any material will stand. What could do more?

DON'T BUILD BEFORE YOU KNOW
The Minter System Plants are Producing the Cheapest Building Material made in America today.

The Minter System
Home Office
Flint River Brick Co.,
Albany, Georgia

Engineering Dept. and
Branch Office
922 Broad Street,
Columbus, Georgia

moderate compared with other centers. Recently the price advanced \$2 per thousand but it was not sufficient to cover the added cost of manufacturing due to increased coal prices. Before the coal strike coal from Illinois mines sold for \$3.81 delivered at the Hydraulic plant. Today fuel is brought from the Kentucky field, costing \$5.87 f.o.b. plant, an increase of \$2 a ton.

The brick industry figures in the cost of a brick structure to the extent of only five to nine per cent. with an average of about 7½ per cent. Mr. Ashmeyer said, "We have no control over the cost of placing brick in a building. Take for instance the overhead of contractors which does not go into the building but affects the price to the consumer about ten per cent. Labor often costs more to put brick in the buildings than do the brick."

Soft brick delivered in St. Louis are only \$10.07 net, and hard brick \$12.07 net.

ROTARY HEARS ABOUT CERAMICS

The Paterson (N. J.) Rotary Club was entertained at one of its weekly luncheons by a talk on "Ceramics," especially the art of making brick, given by Howard I. Wheat.

BRICK COMPANY CHANGES NAME

The Orange Brick Co., Orange, N. J., has filed notice of change of name to the Brick Church Brick Co. Extensive operations are planned.

INSTALLS NEW MINING EQUIPMENT

R. U. Rue & Co., clay miners, operating properties in the vicinity of South Amboy, N. J., are installing new equipment at banks for increased production, to include a new locomotive to be used for the transportation of clay and sand to the river front. Large shipments will be made.

TO TAKE OVER ALABAMA CONCERN

The Clay Products & Mining Corporation, Trenton, N. J., has been organized under state laws, with a capital of \$1,500,000, to take over the plant and property of the Southern Refractories & Kaolin Co., Fort Payne, Ala. It is planned to extend the plant both in clay mining and refractory production. The company is headed by Richard M. J. Smith and Alfred L. Eccles; it is represented by Samuel C. Kulp, 150 East State Street, Trenton.

WILL SELL TILE PLANT

Arrangements have been made for the sale of the plant and property of the Kosko Clay Products Co. located on the Raritan River, near Piscataway, Raritan Township, N. J., by Victor W. Main, receiver, Perth Amboy. The company has been in financial difficulty and previously used the plant for the manufacture of hollow building tile. It consists of about 46 acres of land, with a number of buildings, equipped with clayworking machinery, kilns, and so forth including extensive deposits of clay and shale, as well as sand and so forth.

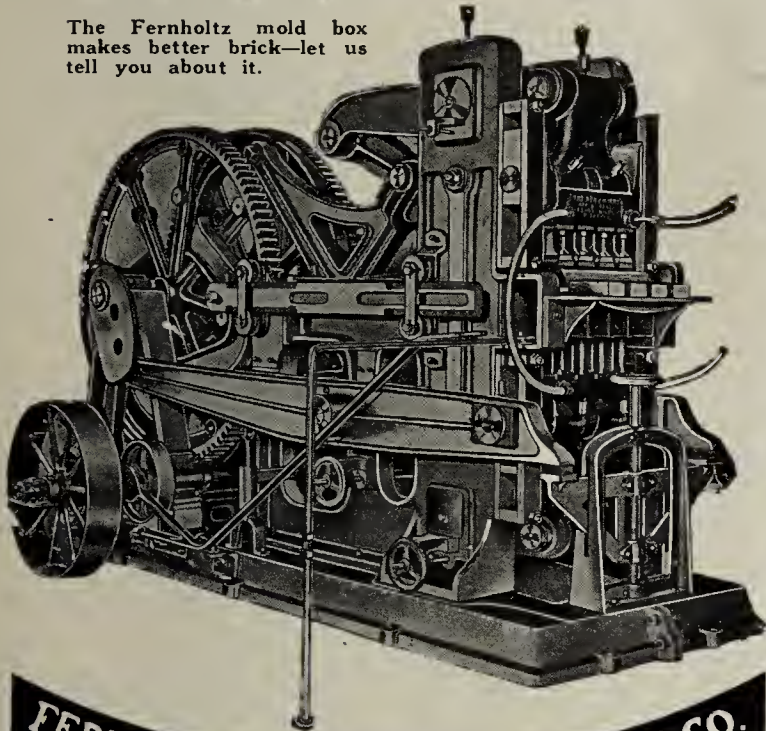
SELLS OUTPUT FOR 12 MONTHS

The John S. E. Pardee Co., Maple Shade, N. J., operating a local plant for the manufacture of brick, will develop capacity output at its plant, and expects to operate on this basis for an indefinite period. The installation of a special type brick-making machine, rated at 40,000 brick per hour, has recently been completed, and will be run on a nine-hour day working basis. The company has secured a contract from the Philadelphia (Pa.) Highway Bureau for all of its brick requirements for the next 12 months. John S. E. Pardee is head.

Better Brick With Real Economy

The Fernholtz Brick Press is constructed to manufacture better brick with little cost. The machinery construction is such that all parts are readily and easily accessible and repairs can be easily made.

The Fernholtz mold box makes better brick—let us tell you about it.



FERNHOLTZ BRICK MACHINERY CO.
St. Louis. Missouri.

WESTON Low Dump Cars

HANDLE WET CLAY EASILY

The Plymouth Clay Products Company, Fort Dodge, Iowa, are obtaining very satisfactory results with their six WESTON AUTOMATIC DUMP CARS.

Read Mr. Norton's Letter—

"We have six Weston Dump Cars which we have been using in clay pits for a number of years, and have found them very satisfactory for this work. Our principal reason for liking them is that they carry quite a large load—about two tons, and they are easy on the track when dumped. The car dumped stands at a sharp angle and for that reason making it easier to get moist clay out of the car. Another reason is that when the car breaks, it comes down with speed, striking the track, which helps to clean the car of any wet clay."

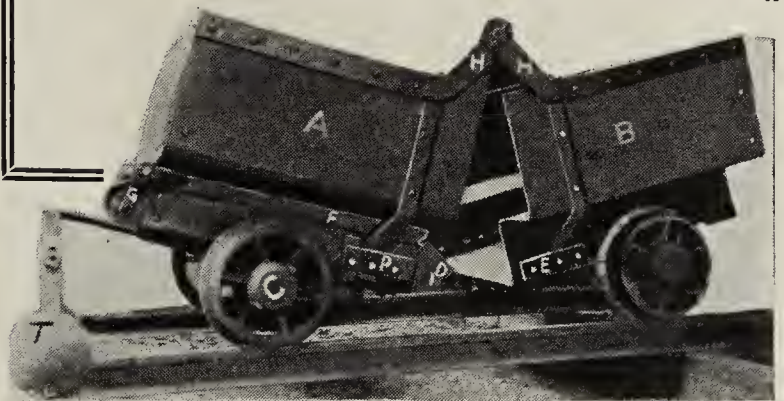
Yours truly,

J. M. Norton.

THE PLYMOUTH CLAY PRODUCTS COMPANY.

What are your hauling conditions? Whatever they are WESTON CARS will handle your clay efficiently, reducing your labor costs to a minimum. Write for complete data.

C. J. WESTON
MANUFACTURER
FORT DODGE, IOWA



WILLIAMSPORT

Telfax Tape Marked
WIRE ROPE

is standard equipment on all
WOOD HYDRAULIC HOISTS

Any manufacturer who uses Williamsport Wire Rope on his equipment is worthy of your highest confidence. He could give you much cheaper rope and you would never know the difference by looking at it.

WILLIAMSPORT WIRE ROPE CO.

Main Office & Works Williamsport, Penna. Gen'l Sales Office Peoples Gas Bldg., Chicago

"The fastest growing wire rope plant in America"



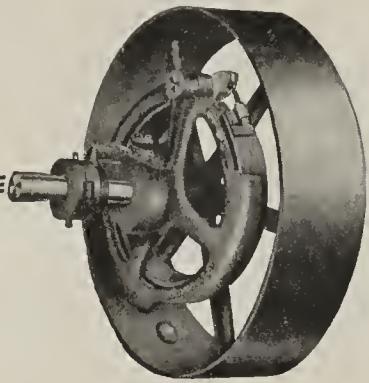
RUBBER GOODS

for the Clay Industry

Test Special Rubber Belting
Indestructible Conveyor Belting
Elevator Belting
Fire Superheat Sheet Packing
Indestructible Sheet Packing
Cobbs Piston Packing

Steam Hose
Water Hose
Pump Valves

New York Boston Chicago
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St. Louis Salt Lake City
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Gripping!

That's the business of a Caldwell Friction Clutch. A flexible band lined with asbestos; a heavy friction rim to transmit the power; a single lever to operate the clutch; one screw for complete adjustment. In fact, only eleven parts—all designed and built to stand the brunt of long, hard service with the minimum of attention.

For your difficult clutch problem—try a Caldwell.

Send for Catalog

W. E. CALDWELL CO.
Incorporated
400 E. Brandeis St.
Louisville, Ky.

Caldwell
FRICTION
CLUTCHES

AT YOUR SERVICE-

Mr. Clay Products Manufacturer,
with thirty years' experience in the
installation of hand-poked or me-
chanical producers, rotary driers, or
calciners.

Let us prove the benefit we can be
to you. Ask for complete informa-
tion today.

We also manufacture a complete line
of stacks, tanks and other steel plate
work of high quality.

Inquire today.

DUFF PATENTS COMPANY
INC.
Frick Building Pittsburgh, Pa.

ANOTHER SHOPE CONCRETE BRICK PLANT

A permit has been granted the Shope Concrete Brick Co., Inc., of Las Cruces, N. M., which has been capitalized at \$30,000. Headquarters of the company are at El Paso, Tex.

PRISON PLANT TO INCREASE VARIETIES

The prison brick plant at Santa Fe, N. M., is conducting experiments in making several different kinds of brick in the hopes of adding two or three new kinds to its output. According to R. L. Ormsbee, secretary of the prison board, builders in Santa Fe have been obtaining brick from El Paso, Denver and other places because they could get more variety in color and quality, and to compete with these outside plants it was deemed necessary that the prison plant furnish more kinds of brick than are turned out at present.

NEW COMPANY IN NEW YORK FAMILY

A notice recently received carried the announcement of the incorporation of the P. & N. Brick Co., Saugerties, N. Y. Capital stock in the new company is \$20,000, and its incorporators are W. Picker, J. and R. Malakoff. A. Simmons of New Rochelle, N. Y. is attorney.

TILE COMPANY ORGANIZED

The Mineola (L. I.) Tile Mfg. Co., has been organized under state laws, with a capital of \$50,000, to manufacture tile and other burned clay products it is said. The company is headed by E. J. Armstrong, E. Schmidt, and A. A. Lein. It is represented by Seabury, Seaman & Gehrig, Hempstead, L. I.

BUFFALO GETS NEW CLAY COMPANY

The Insulatal Products Corporation, Buffalo, N. Y., has been organized under state laws with a capital of \$100,000, to manufacture brick, tile and kindred products. The incorporators are Gerald A. Craver, George C. Haas and Alvin C. Smith, 2324 Fillmore Avenue, Buffalo.

HUDSON, N. Y. PLANT TO CHANGE HANDS

The Arkison Brothers brick plant at Hudson, N. Y., will shortly be taken over by a new corporation and put under full operation if negotiations now pending are satisfactorily arranged. The principal stockholders of the new corporation, it is said, will be Edward Leonard, Edward Garrity and Harry Deacon, all well-known Hudson men.

CONSIDER PLANT FOR WATERTOWN, N. Y.

It is probable that the manufacture of brick will again become a reality in the vicinity of Watertown, N. Y. The Chamber of Commerce is having tests made of clay in the vicinity, which, if successful, will undoubtedly result in this industry once more becoming active in Watertown. Years ago there were a number of brick plants in or close to the city, but at no time was there the profit in brick manufacture that there is today, it is said by those interested in the project. It is pointed out that two brick plants in Coeymans, near Albany, last year added big dryers in order to run two more months in the year to supply their demand.

BINGHAMTON BELIEVES IN PAVING BRICK

Binghamton, N. Y., is an enthusiastic booster for the paving brick produced by the Binghamton Brick Co. of that city. The city has no money for experimental work, and cannot afford the extravagance of pavements which must be continually kept in repair, so when any paving is to be done brick is always chosen. They base their choice

TRUTH—

*in regards to property costs
and values, is essential—*

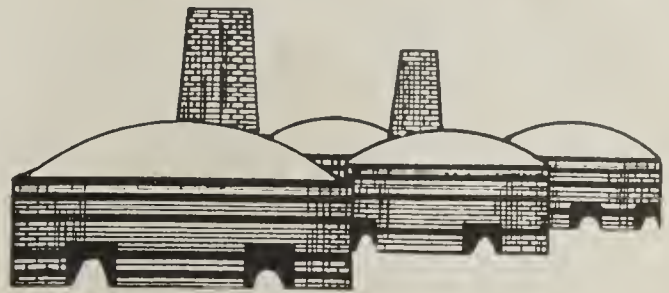
No matter whether it be in connection with insurance, accounting, taxation, financing, or plant administration, reliable appraising is imperative.

American appraisals have proven their value for a generation. Plants in successful operation all over the country which have had our help are evidences of the value of American Appraisals.

*Let us show you what can
be done in your plant.*

No obligation for information

**THE AMERICAN APPRAISAL CO.
MILWAUKEE**



RELIABILITY

The high quality material in Robinson Kiln Bands makes them totally reliable. They successfully withstand strains, and prevent sagging or bulging of your kilns.

*Let us quote you on your
requirements*

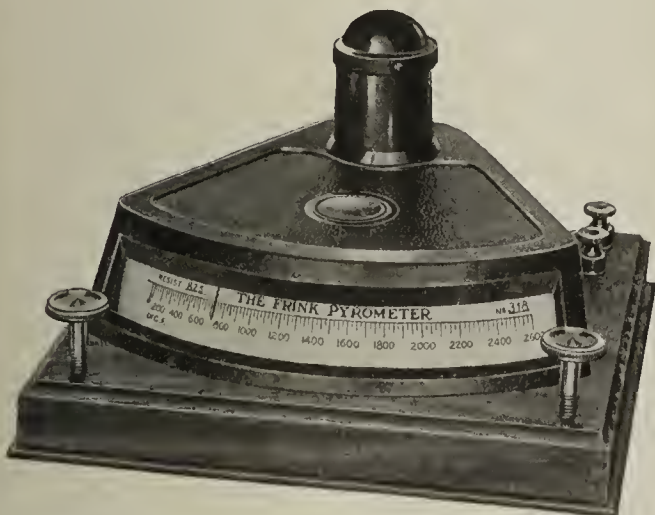
FRANK H. ROBINSON
Dryer Cars and Clay Working Equipment
Factory and General Office, Pittsburgh, Pa.

Let the Verdict of Others Guide You

Read what Mr. C. E. Richolt of Richolt Bros., of Holgate, Ohio, has to say about his FRINK PYROMETER:

"We have used a Frink Pyrometer for 8 years and have never had a bit of trouble with it. In fact, I think it is the best on the market."

Write for a Frink catalog—no obligation.



**THE FRINK PYROMETER COMPANY
LANCASTER, OHIO**

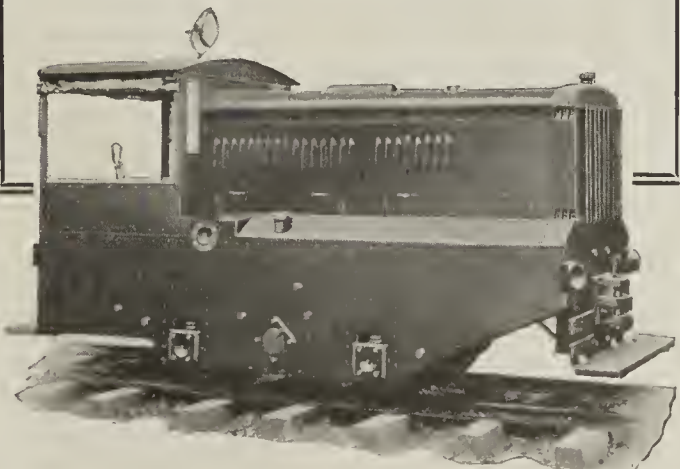
"MINSTER" Industrial Locomotives

Assure the maximum of Service with a minimum cost per upkeep.

2 to 8 Ton Capacities.

Write for Catalogue

THE INDUSTRIAL EQUIPMENT CO.
510-516 Ohio St. Minster, Ohio
Eastern and Export Department
THE HERBERT CRAPSTER CO., Inc.
1 Madison Avenue, NEW YORK CITY



Doing Wonders With Common Sense!

In most every clay plant regardless of size or capacity, there is room for changes which will effect better economy.

Waller Crow Engineers have aided clay plant operators to reduce their cost in this way; the application of common sense.

Don't buy heavy priced machinery before you consult us. It may not be necessary to make a purchase.

Write today for complete information.

Catalog on request



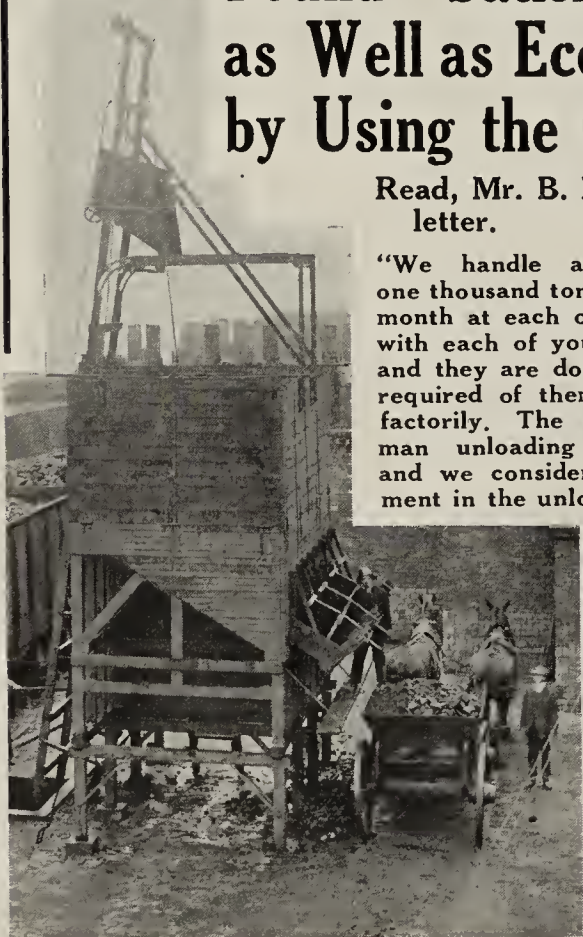
And Still Another Who Has Found Satisfaction as Well as Economy by Using the Galion

Read, Mr. B. B. Belden's letter.

"We handle approximately one thousand tons of coal per month at each of our plants, with each of your unloaders, and they are doing the work required of them very satisfactorily. The saving over man unloading is material and we consider our investment in the unloaders a good one."

Have you investigated the Galion Unloader? Do so Today!

The Galion Iron Works & Mfg. Co. GALION, OHIO



on the excellent service rendered by brick pavements in Binghamton which are nearly 20 years old, and which in spite of the heavy traffic sustained cost practically nothing for repairs. Brick pavement with a soft asphalt filler has been found most satisfactory in this town.

BURNS FIRST KILN SUCCESSFULLY

The first burn has been completed at the new brick plant in Carthage, N. C., established by W. P. Benner. The first brick are highly satisfactory, and will be used in the new court house and a new filling station in Carthage. Mr. Benner expects to turn out some sample dry press brick after the plant is in smooth running order. The raw material indicates that a successful dry press brick can be made, and if this proves to be the case the deep red color of the brick should make it a popular product over a territory as wide as the plant can serve. More kilns will be prepared as fast as the brick can be made.

USE ODD SIZE BRICK FOR HOME

Among the unusual contracts placed for face brick this season is that taken by the R. L. Queisser Co., Cleveland, Ohio, for supplying the face material for two residences on Cleveland Heights. They will be unique in that 9x2-inch Oriental brick will be used, these being made especially for this work. Not only will the buildings be faced with this material, but a connecting wall between the two houses, and forming a bridge over a sunken garden, will be built with the material as well.

ORGANIZE COMPANY IN COLUMBUS

The Independent Clay Co. of Columbus, Ohio, has been chartered under the laws of Ohio with a capital of 500 shares of stock, no par value designated for the purpose of manufacture and selling all kinds of clay products. The incorporators are Charles H. Lahr, Joseph T. Sweeney, S. S. Murdock, W. G. Murray and R. H. Russell. The company contemplates the erection of a plant in a place in the Hocking Valley for the manufacture of brick and hollow tile. The plans are to be announced later.

FIRE DESTROYS DRYER

Damage estimated at approximately \$10,000 resulted from a fire which almost totally destroyed the dryer of the Globe Brick Co., at Kenilworth near East Liverpool recently. No insurance was carried on the building.

The drying room was approximately 200 feet in length and about 80 feet wide.

Fred Porter, an official of the company, could advance no theory as to the origin of the blaze, stating that no fires were burning in the structure, steam being used to dry the brick.

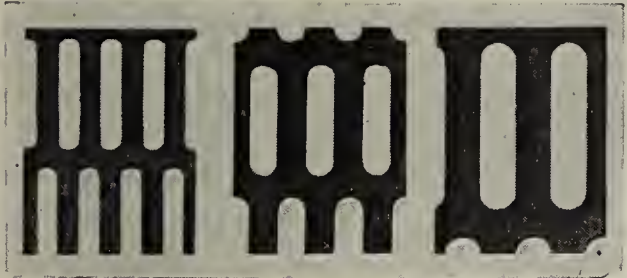
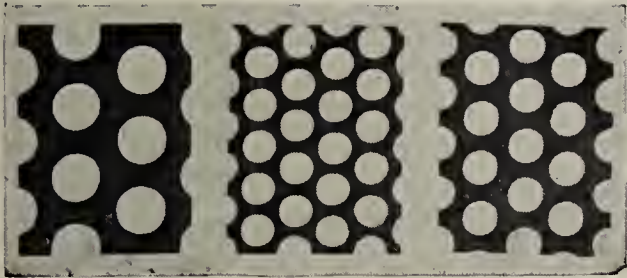
OHIO DOES MUCH BRICK PAVING

Quite a large amount of brick paving contracts are being awarded by the Ohio Highway and Public Works Department. Advertisements for bids have been regular each week and many ask for bids on either plain or monolithic brick. Awards of contracts made a week later have been for brick paving to a large extent and much of the work awarded earlier in the season has been started. Recent awards included three stretches of road in Summit County; a job in Mahoning County, another in Tuscarawas County and a long stretch in Crawford County.

MAKING MANY IMPROVEMENTS

George P. Shute, of the Shute Co., 209 South High St., is overseeing the large building program of the Cambrai Clay Products Co., at Blackford, Ohio. This work was started

Perforated Steel Screens



For Screening Clay, Shale, Sand, Gravel, Stone and Cement

All sizes and shakes of holes in metal of proper thicknesses to give the best screening results.
Sheets furnished flat or rolled to shape for revolving screens.

THE HARRINGTON & KING PERFORATING CO.

635 N. Union Ave., Chicago, Ill.

NEW YORK OFFICE: 114 Liberty St.

SUCCESSFUL

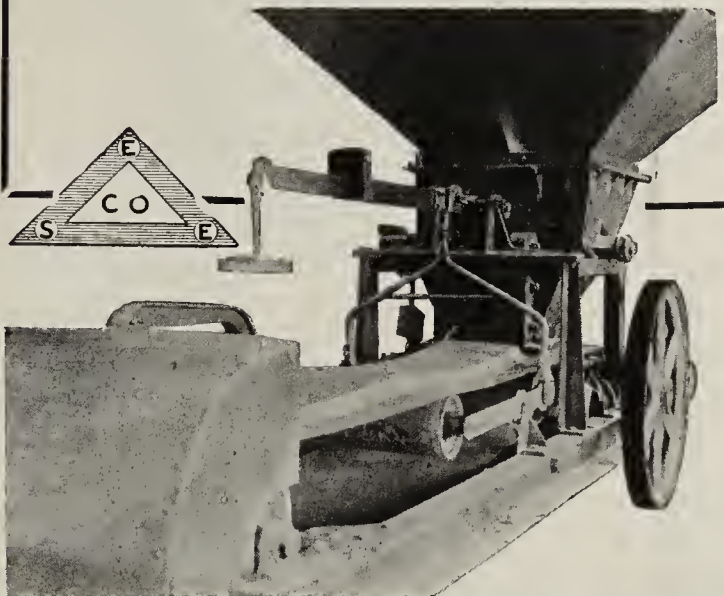
Where the demand is heaviest, where quality has first consideration, where conditions are adverse, where economy must be rigidly enforced, where speed is necessary—that is where the POIDOMETER is most successful.

Let our engineers tell you what the Poidometer will do for you.

SCHAFFER ENGINEERING and EQUIPMENT COMPANY

2828 Smallman Street

Pittsburgh, Pa.



Jenkins Brass Swing Check Valve

Fitted with Jenkins Renewable Disc which takes up wear and gives valve practically unlimited life. Angle of seat is such that it opens readily at low pressures. Disc lifts well out of passage when wide open and affords no more resistance to flow than the best gate valve.



Fig. 352, Jenkins Standard Brass Swing Check Valve, screwed.

Also horizontal, angle, and vertical check valves.

Know genuine Jenkins Valves by the Jenkins "Diamond" and signature—at supply houses everywhere.

JENKINS BROS.

New York Montreal
Chicago Philadelphia
Boston London

Jenkins Valves
SINCE 1864

Big Savings Follow in the Route of the Rust Special

Features of economy and big savings follow in the path of the Marion Rust Special Feeder Mixer. Clay products manufacturers realize increased efficiency in profit wherever this machine is installed.

Write for complete data

MARION MACHINE FDY. & SUPPLY CO.

P. O. Box 395
Marion, Ind.





**HY-GRADE MANGANESE CO.
WOODSTOCK, VA.**

**Miner
and
Grinders**

**Especially Prepared
for Brick Making**

DIESEL ENGINES FOR CLAY PLANTS

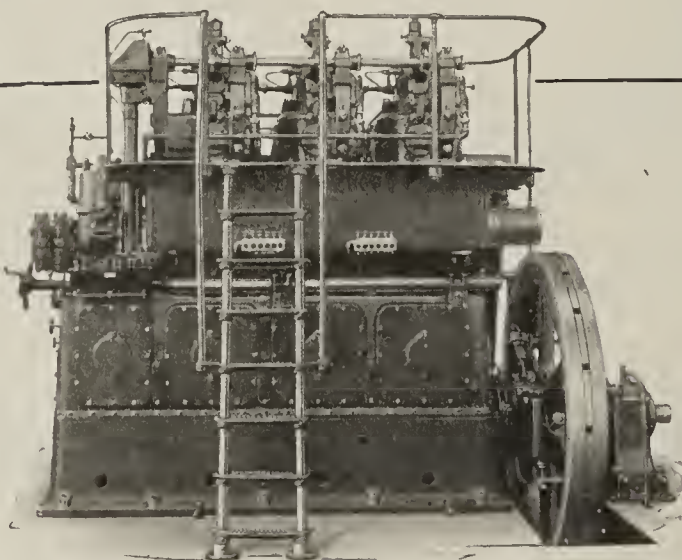
Economical Power—Efficient Operation—Convenient—Conservative—Complete—Easy to care for—Always ready and reliable.

This engine operates on cheap fuel oil. Fuel storage space decreased. A small amount of fuel makes a big amount of power.

Send for new catalog, either vertical or horizontal types furnished.

**THE HADFIELD-PENFIELD STEEL COMPANY
Bucyrus Ohio**

Formerly the American Clay Machy. Co.



in 1919 and consists of a larger water supply, opening new mines for both coal and clay, tunnel and tippie construction and the erection of a brick office building. The plant is located on the site of the first coke ovens in Ohio in Lawrence county. The company specializes in the manufacture of sewer pipe. The Shute Co. of Columbus also acts as sales agent for the product of the company.

FIRE DAMAGES SEWER PIPE COMPANY

Fire of undetermined origin late Sunday destroyed the pattern shop of the American Vitrified Products Co. at Akron, Ohio, causing damage of between \$150,000 and \$250,000 it is said. The building, which was practically destroyed, was one of the industrial landmarks of Akron, having been the first plant of the former Hill Sewer Pipe Co.

The loss to machinery could not be determined, officials said. Records of the blue prints of the machinery for the many plants operated by the sewer pipe company were saved by firemen and officials of the company.

COAL STRIKE CAUSING PRICE ADVANCE

Prices of face brick in Columbus and Ohio territory are gradually advancing because of the coal miners' strike. During the past month advances of from \$2 to \$5 have been made in the price of all face brick, while common brick are being held at about former levels. An advance of from \$3 to \$5 per thousand has been made in the price of hollow building tile. This results from the difficulty of securing coal for the burning of brick and tile. Many of the plants in the Hocking Valley had their own coal supply and mined it as needed, but workers have now been withdrawn from the mines.

PREDICT 1922 BIGGEST SUMMER

Biggest summer in recent years, and one of the biggest in the history of the organization, is seen by officials of the Collinwood Shale Brick & Supply Co., Cleveland, Ohio, since the booking of many large orders in the last few weeks. These orders call for all materials manufactured and handled by the Collinwood. To care for the between seasons' trade a new coal department has been added, and this proved successful last year and will this year, in the opinion of H. C. Moatz, company president. The company has a 60 day supply of fuel on hand with which to start the fall demand, and settlement of the strike is expected to afford a big opportunity to fill in the so-called dull season.

MAKES PLANT IMPROVEMENTS

Robert A. Nicholson of the Hobart (Okla.) Brick & Tile Co. informs us that this plant has installed new boilers. The oil burning equipment in use there has also been remodeled.

FORM CLEARVIEW BRICK CO.

The Clearview (Okla.) Brick Co has been organized with a capital of \$30,000 by Mary E. Doggett, James E. Thompson, J. W. Swain, all of that city, a report states.

MAKES TEN MILES OF DRAIN TILE

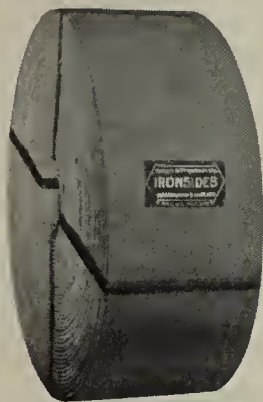
Manager Philip Corbett reports that the Corvallis (Ore.) Brick & Tile Works, turned out 1,100,000 brick last year and ten miles of drain tile.

BRICK COMPANY DISSOLVES

The Diamond City Brick Co., Wilkes-Barre, Pa., is being dissolved, it is said, and the property of the company will be sold.

Main Drives

The Main Drive is the pivot on which the operation of your entire brick or clay plant revolves. Successful plant efficiency makes it necessary to use proper belting that will insure continuous running. Interruptions cost money. The yearly waste from loss of operation runs into startling figures.



IRONSIDES

Friction Surface

Rubber Belt

Is strictly a main drive belt, and has been put to the test on many a hard drive in plants of all kinds of industry.

The performance records, covering years of service, have demonstrated to many a belt buyer the wisdom of using IRON SIDES.

For conveying purposes our DESERT and QUAKER CITY brands will show you economy.

Let us figure on your belting requirements

Quaker City Rubber Co.

Main Office and Factory, PHILADELPHIA

Branches:
Chicago Pittsburgh New York

No. 132

Round heel shelf bucket
—especially adapted for
handling damp materials.

No. 131

Square heel shelf bucket
—also adapted for
handling mud, ore,
coal, etc.

No. 1124

Straight trough front
—pours its load in-
stead of throwing it.

SALEM

ELEVATOR BUCKETS

When one make of elevator bucket has been the undisputed leader in its field for half a century—there can be no question but that it is the best.

Salem Buckets are used by the most careful equipment buyers. They are selected because of their service.

Send for price list

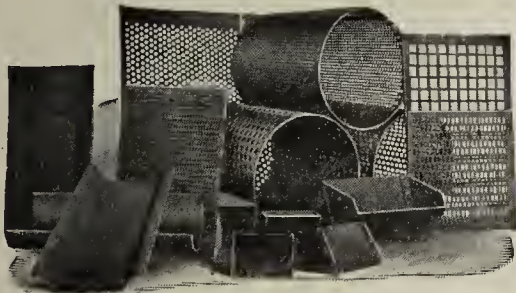
MULLINS

Body Corporation

Stamping Dept.
101 Mill Street Salem, Ohio
Successors to the W. J. Clark Co.

HENDRICK SCREENS

FOR ALL PURPOSES



**ELEVATOR BUCKETS
CONVEYOR TROUGH and FLIGHTS
STACKS, TANKS,
GENERAL SHEET and
LIGHT STRUCTURAL WORK
LIGHT AND HEAVY STEEL
PLATE CONSTRUCTION**

*Ask for your copy of the
Perforated Metal Handbook*

HENDRICK MFG. COMPANY

CARBONDALE, PA.

NEW YORK OFFICE: 30 Church St.
PITTSBURGH OFFICE: 544 Union Arcade Bldg.
HAZLETON, PA., OFFICE: 705 Markle Bank Bldg.



Improve Quality, But Do It Economically!

By employing the One-Man Excavator to dig your clay and shale.

Plants of 25,000 to 100,000 daily capacity have gained surprising results by the use of the One-Man Excavator. In many instances it has displaced 12 men and is costing less for operation than the wages of three of them. Furnished with gasoline or electric power, track or caterpillar type mounting.

*Ask About the One-Man
Excavator.*

The Bay City Dredge Works
Bay City, Mich.

The Gate Automatic Stoker Should Be On All Your Kilns!

■ ■ ■ ■

The June 13th Issue of
Brick and Clay Record
Tells Why.

Let us send you a reprint.

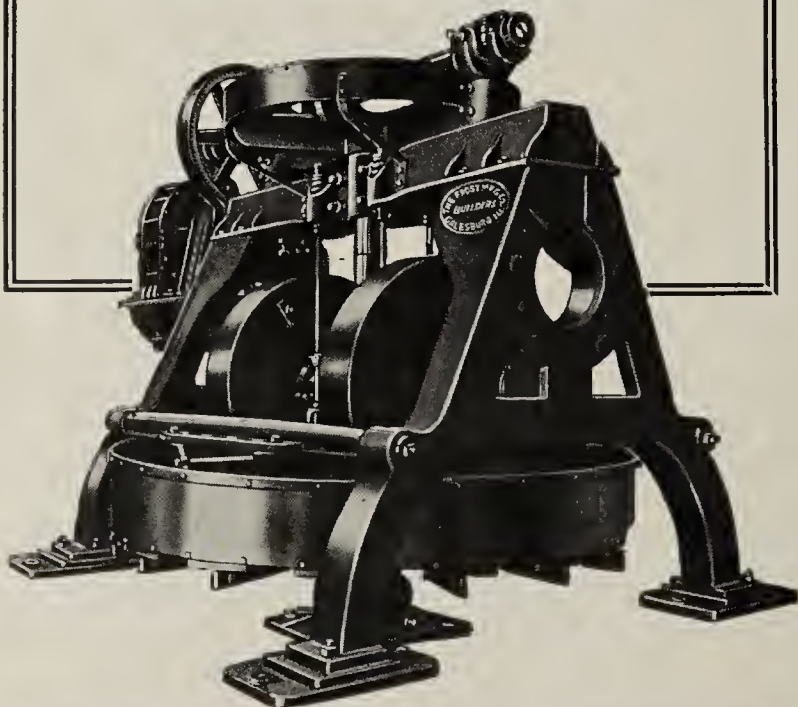
■ ■ ■ ■

**The
Clay Service Corporation**
138 N. LASALLE STREET
CHICAGO

BETTER QUALITY WARE

That is the result when Frost
Dry Pans are put on the job.

THE FROST MFG. CO.
GALESBURG, ILLINOIS



QUALITY ECONOMY SERVICE

INCORPORATES FOR \$200,000

It is reported that the Cambria Clay Products Co., Johnstown, Pa., has been organized with a capital of \$200,000.

ELECTRIC POWER TO BE ADOPTED

Electrification is proceeding at the Schuylkill Pressed Brick Co., Schuylkill Haven, Pa. It is hoped to effect greater economy of production thru the use of electric power equipment.

TO REPLACE OLD KILNS WITH NEW

The Harbison-Walker Refractories Co., Clearfield, Pa., is making improvements at its plant to facilitate production. Old brick kilns are being demolished and will be replaced with new structures.

OBTAINS LEASE TO MINE CLAY

The Pennsylvania State Forestry Commission has awarded a lease to mine white clay in the Michaux forest, Cumberland County, Pa., to a Cleveland company at 25 cents per net ton, it is said. The lease will extend over a period of ten years.

WORKING AT CAPACITY

The McLain Fire Brick Co., Pittsburgh, Pa., is operating both of its plants at Irondale, Ohio, at full capacity, and expects to maintain 100 per cent. production, with full working force, for an indefinite period. The company is said to have a number of large quantity orders on hand.

LANCASTER BRICK GETS FREE PUBLICITY

Publicity of an excellent nature was accorded the Lancaster (Pa.) Brick Co. recently by the Lancaster Daily Intelligencer. This paper devoted a full page to the activities of the Lancaster company, describing especially the new type of brick machine which has been installed there, and which is said to be a great improvement over the old time methods.

Considerable space was devoted to the history of brick thruout the ages, in Babylonia, Egypt, Europe, England and America, which information was gotten from "The Story of Brick," put out by the American Face Brick Association.

SOUTH CAROLINA PLANT HAS BIG OUTPUT

Down in Gaffney, S. C., is a clay products plant known as the McCraw Brick Co., Inc., which is manufacturing 125 tons of tile and 80,000 brick daily, a report states. This concern has been in operation for the past 18 months, and its products have been shipped to various parts of the United States. The company works a very high grade clay and turns out an excellent product. Officers are J. A. Carroll, president; C. B. Meadows, secretary and general manager.

WILL BUILD 3,900 MILES OF ROADS

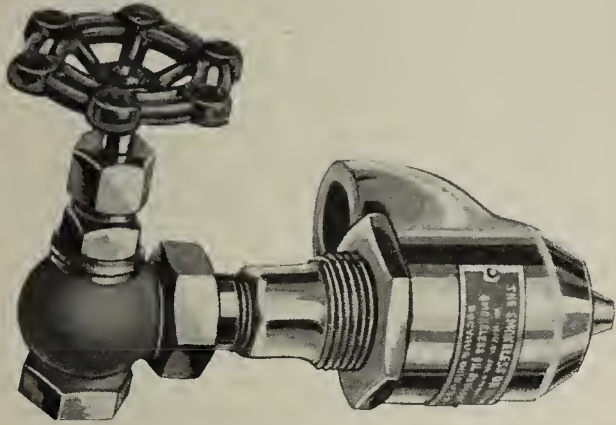
Tennessee will have a network of 3,900 miles of hard surfaced highways if the plans of the Tennessee Good Roads Association for a \$75,000,000 bond issue are realized. The program is to build the entire highway system in the state, consisting of 3,900 miles, within a period of 7½ years, and to make such construction of a permanent hard surfaced type.

BURN FIRST BRICK AT MODEL BRICK CO.

Work has begun at the plant of the Model Brick Co., Houston, Tex., and this company is now operating on a basis of 20,000 brick per day. The Model Brick Co. was organized in February of this year by Fritz Aebi, Joseph H. Myer, Jr., W. T. Carter, and R. C. Harden. Brick are being manufactured by the dry press method, and are burned with wood. Approximately

Do You Burn With Oil?

Item 438, Clay Products Cyclopedia says: In using fuel oil for operating boilers or kilns it is necessary to have some burner which will insure the utmost economy.



The Smokeless Oil Burner

(PATENTED)

was designed, developed and patented by practical men for the purpose of making oil burning as simple and efficient as natural gas and to provide a means whereby a small user can get as good results as a large one.

Three Important Features

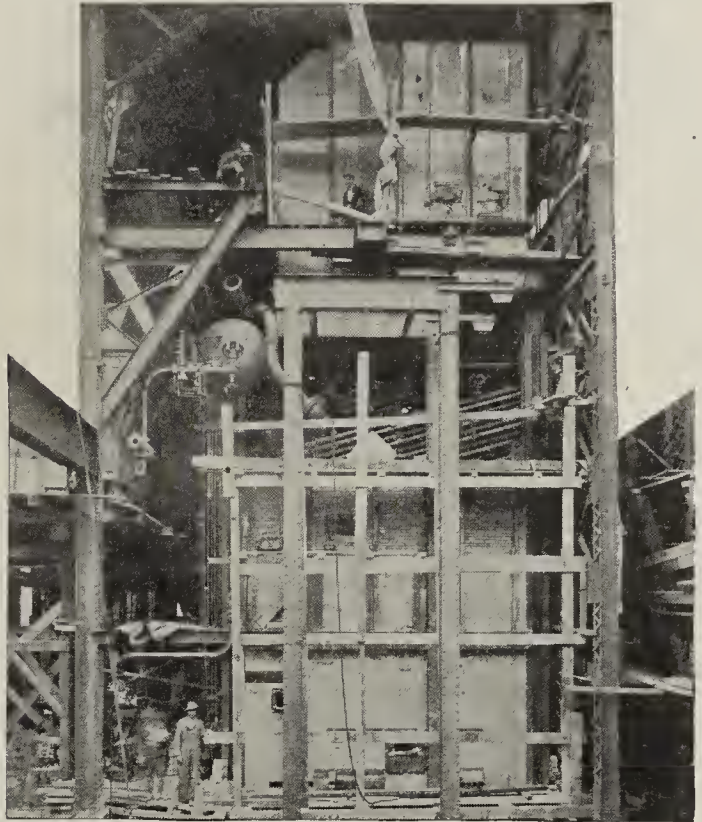
1. The ECONOMY with which it may be installed and operated—it burns all the fuel without smoke or waste.
2. The high heat EFFICIENCY and low consumption of fuel.
3. Its SIMPLICITY—no complicated parts to clog up or get out of order.

If you burn with oil or are considering oil burning equipment—write us today. It will mean a saving for you.

Smokeless Oil Burner Co.

BUCYRUS, OHIO

Air Compressors—Blowers—Pumps—Meters—Etc.



Insulated with Nonpareil Brick these boilers, here shown under construction, made the unusual performance described below. Plant of the Consumers Power Company, at Battle Creek, Mich.

This is Performance

THE Battle Creek (Mich.) plant of the Consumers Power Co., report that, for a month's run at ordinary load, over 80% of the heat value of the coal was delivered into the steam line. A remarkable record. And these six boilers are insulated with Nonpareil Brick. Heat that would otherwise be lost by conduction and radiation through the settings is thus saved and contributes materially to the high efficiency attained.

That Nonpareil Brick were adopted in a plant embodying the latest design and the most efficient devices for conserving fuel is sufficient evidence that their heat retarding value is considered one of the important economies of the modern power plant.

Nonpareil Brick save 60% to 75% of the heat lost by conduction and radiation from uninsulated equipment. Not only in boilers, but in kilns, dryers, etc., this saving effects a marked economy in fuel, better temperature control and more uniform heating.

Heat leaks and how to stop them is the interesting subject of the 72-page book, "Nonpareil Insulating Brick," which, with a sample brick, will be sent free on request. Write for yours.

Armstrong Cork & Insulation Company
149 Twenty-fourth Street :: Pittsburgh, Pa.

Also manufacturers of Nonpareil High Pressure Covering for steam lines, feed water heaters, boilers, etc.; Nonpareil Cork Covering for drinking water systems, brine and ammonia lines, and cold pipes and tanks generally; Nonpareil Corkboard Insulation for cold storage rooms; Nonpareil Cork Machinery Isolation for noisy machines, and Linotile and Armstrong's Cork Tile for floors in offices, residences, etc.

Nonpareil Insulating Brick

For Boiler Settings and Kilns

Mr. Sewer Pipe Manufacturer

The TORONTO SEWER PIPE PRESS

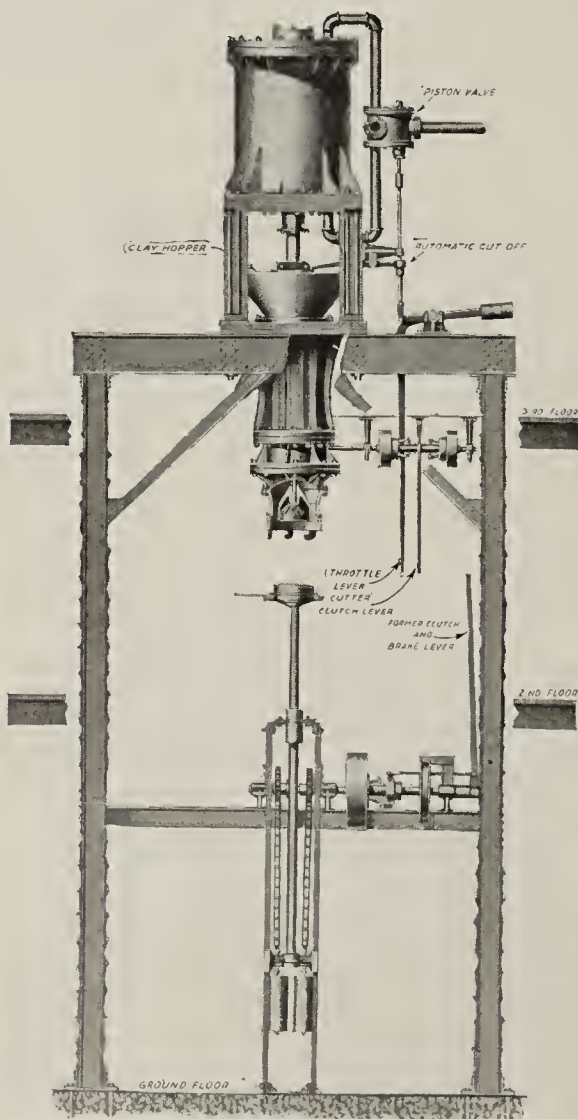
Will Give You:

Continued and Uninter-
rupted Service.

Greater Speed.

Larger Percentage of No. 1
Quality Pipe.

Let Us Tell You Why



Toronto Sewer Pipe Press

The Toronto Foundry & Machine Co.
Toronto, Ohio

25 days are required to complete the burn from water-smoking thru the cooling period. There is but one kiln in use at this plant at present, but when completed five kilns will be in operation. They will have a capacity of 300,000 brick.

NEW DIXIE PLANT ASSURED

O. E. Thomas, president of the Dixie Coal, Lime and Clay Products Co., of Graysville, Tenn., announces that the brick plant to be constructed by this concern is now assured and that work will get under way as soon as possible. Announcement that the project was proposed was made some time ago in Brick and Clay Record. The new plant is to have an initial capacity of 100,000 daily.

LOWLY BRICK BECOMES NUT ANVIL

"Bill" Mills at New Orleans has certainly found something new under the sun," says a letter recently received from the Acme Brick Co. of Fort Worth, Texas. "Bill" is more formally known as W. B. Mills, New Orleans branch manager of the Acme Co. The letter continues:

"That thing is to the credit of his fair city, therefore let no one steal his thunder!

"The Oriental Cafe—with occidental pep and progressiveness has devoted a week of happiness and hilarity to nuts—no quotation marks, please—for their guests.

"Hammers, about four to each table, were furnished with which to crack these nuts while listening to the cracks of the comedians and the music (?) of the jazzers. Naturally this would be rather destructive to the surface of the tables. Something had to be done. With their aforesaid occidental resourcefulness, the management decided that brick should be used as anvils. This is a hard life for a brick—even for only a week.

"Here is where Bill came in strong. As it would for that week be good advertising for Acme Brick to have them on the tables of the Oriental where the guests could not fail to see the already famous words, Acme Brick, Bill let the Oriental have as many round-edge shade 82 as they needed—at regular retail prices, plus drayage to the job.

"We have not had a report from that particular sector of the front, but are certain that Acme Brick have proved their dependability as anvils on which to crack nuts.

"We freely admit and without fear of successful contradiction that this new use for brick is 'something else again.' As Ignatz says, 'Good Hunting.'"

DECREASES CAPITAL 50 PER CENT.

The Coal Grove (W. Va.) Brick & Tile Co. has decreased its capital from \$100,000 to \$50,000.

NITRO BRICK CHANGES NAME

The Nitro (W. Va.) Brick & Tile Co. has announced a change in name. It will be known hereafter as the Clay Craft Manufacturing Co.

JANESVILLE BRICK WORKS STARTS

Freese Brothers have opened their plant known as the Janesville (Wis.) Brick Works and have employed between 12 and 15 men to operate the works at its normal output of 25,000 brick. Opening was delayed one month due to a large stock on hand carried over from last season.

INCREASES OUTPUT

Omar Gaston, manager of the L. H. Cordes Brick Works, Watertown, Wis., announces that with the addition of modern machinery and appliances the capacity of that plant has been increased to ten million brick, loading out more than 500 carloads a season. Hollow tile and drain tile will be new products manufactured during this season, he declared.

ATLAS EXPLOSIVES
USED ON BIG JOBS EVERYWHERE



Thawing kettles and the thawing house, once indispensable factors in the use of high explosives, now are things of the past on operations where Atlas Non-Freezing is used. Furthermore, the "powder headache," so common with the handling of ordinary high explosives, is UNKNOWN where this super-explosive is employed. Tell us what explosive you now are using and we will tell you what grade of Atlas Non-Freezing will do YOUR work.

ATLAS POWDER COMPANY
WILMINGTON, DEL.

Branch Offices: — Allentown, Pa.; Birmingham, Ala.; Boston; Chicago; Houghton, Mich.; Joplin, Mo.; Kansas City; Knoxville; McAlester, Okla.; Mexico City, Mexico; New Orleans; New York; Philadelphia; Pittsburg, Kans.; Pittsburg, Pa.; Pottsville, Pa.; St. Louis; Wilkes-Barre.



Famous for Economy

There are many ways that "PROCTOR" Dryers prove their wonderful economy in drying.

Of outstanding importance is the tremendous saving of time made by these machines wherever they have replaced other methods of drying. Not only have they radically reduced the actual drying-time for all kinds of ceramic wares, but always their systematic operation has accelerated the flow of ware to the kilns and cut down the production schedule.

Invariably the installation of "PROCTOR" Dryers saves a great deal of labor, space and steam over other methods.

Then, too, the perfect quality of "PROCTOR" drying has increased the percentage of first quality ware and decreased the loss from spoiled ware in a substantial measure.

There's a "PROCTOR" Dryer for **your** ware among the various types of these machines we build. Let us make you acquainted.

PROCTOR & SCHWARTZ, INC.
PHILADELPHIA



Tunnel-Truck Humidity Dryer for Electrical Porcelain, Saggars' Chemical Stoneware, Tile, etc.

20 YEARS OLD



TWENTY years ago a large terra cotta company installed their first Goodman Electric Locomotive. This locomotive is still in continuous daily service.

The owners state that they have not a machine in their plant that has given them such returns for the investment as have their Goodman Electric Locomotives.

Will your next locomotive be a Goodman Electric?

Write today for Catalog. We will send with it a data sheet which you may fill out and return to us for our use in determining just what we can supply to meet your exact requirements.

GOODMAN MANUFACTURING CO.

48th and Halsted Streets

CHICAGO, ILL.

ORDERS INSURE SIX MONTH'S WORK

With orders booked so far ahead, that recently it was found necessary to cancel an order for 1,000,000 brick, the Marshfield (Wis.) Brick Co. has enough work on hand to keep running full time for six months to come, company officials announced. The company owns a tract of 800 acres of land that will furnish enough material for 3,000,000 brick an acre and only lack of machinery and other necessary equipment prevents the company keeping up with the demand. The company will install a forced draft burning system. An electrically operated excavating shovel will also be purchased by the company in its efforts to make the brick plant modern in every respect.

MILTON MAKING IMPROVEMENTS

Business continues brisk in the clay product field around Toronto. The various plants in that vicinity are not only busy but are looking towards extending the capacity of their plants. The Milton Pressed Brick Co., Limited, will add several kilns and perhaps some other equipment which will greatly increase its capacity. This company has been shipping beyond capacity and now the surplus piled in the yards last winter is gone and orders are received for shipment in three weeks. The Milton Pressed Brick Co. has seen a steady growth in the past 30 years. It is the aim of J. S. McCannell to bring it up to a capacity of 400,000 face brick per day and with the contemplated improvements this figure will be within sight next spring.

VITRIFIED WARE IN GOOD DEMAND

A. G. Dalzell, in referring to the business conditions existing in the vitrified clay pipe industries, stated that with the activity in building construction, there is a demand for the smaller sizes of sewer pipe, flue linings and wall copings. The demand for flue linings is increasing as the advantages for building chimneys in this way is becoming known. In some municipalities this type of construction is made compulsory in the by-laws and a lower insurance rate is the result. There is a heavy demand for sewer pipe and tile in connection with the extensive road building program and in the drainage of roads in the municipalities. It is anticipated that with the new districts being opened up adjacent to the larger cities there will be considerable sewer construction carried on at an early date.

THE BUILDING SITUATION

(Continued from page 28)

the construction of dwellings is shown during the half year with the chartering of 935 as compared with permits for 547 dwellings in the first six months of 1921.

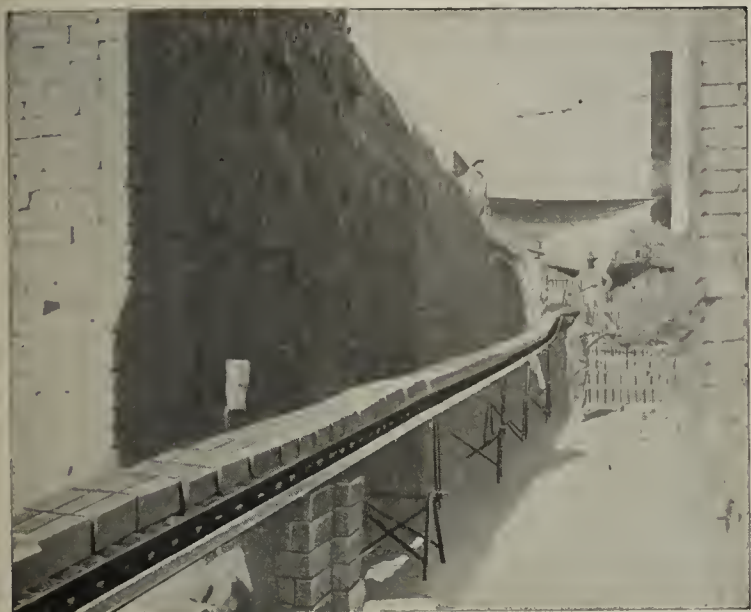
Chicago's June Records Stay at High Level

Permits for 2,762 new homes—2,060 apartments and 702 single residences—were issued by the Chicago building department in June. The figures break the record established in May, but the value of the buildings involved is approximately \$1,000,000 less than those for which permits were issued in May.

The figures are as follows:

	June, 1921.	May, 1922.	June, 1922.
Residences	436	635	702
Apartments	117	371	484
Industries	95	175	142
Others	27	92	84
Totals	675	1,273	1,412
Frontage	18,510	39,330	41,421
Value	\$7,484,200	\$27,029,650	\$26,593,850

In May and June permits for apartment buildings to contain 4,178 flats were issued.



The Brickmaker's Friend

It would be a difficult matter to find a more fitting name to apply to Standard Ball-bearing Roller Brick Conveyors.

These sectional, untiring, ever ready conveyors have been tried and never found wanting in times of need.

Unlike the usual portable power driven mechanical contrivances, they never endeavor to shirk a day's or even a portion of a day's work by pleading, "out of order."

Operated by a perpetual power, GRAVITY, the sensitive ball-bearing rollers respond instantly and freely to the pressure of the load, and riding friction free, brick and all clay products are transported from car to pile or vice versa.

Our representative in your territory will gladly call and show you how effectively a few sections of these time- and labor-saving conveyors will operate in your yard.

Write Today

STANDARD

CONVEYOR COMPANY, INC.

NORTH ST. PAUL, MINN.

New York
227 Fulton St.
Milwaukee
601 Security Bldg.

Chicago
549 W. Washington St.
Cleveland, O.
1108 Hippodrome Bldg.

Representatives in all principal cities

"HURRICANE" DRYERS



Drying Electrical Insulators

THIS TUNNEL DRYER was the means by which one large plant, manufacturing high tension electric insulators, cut more than a week from their manufacturing schedule. It now takes but 48 hours to completely and uniformly dry this ware. It previously required from ten days to two weeks.

Shrinkage checks are practically nil, as the drying conditions are always under automatic control. Breakage due to handling is eliminated since the ware is not touched from the time it leaves the green finisher until after it has been dried, and ready to be dipped. The insulators are handled on rubber wheeled trucks, being progressed through the dryer by an automatic pushing apparatus, at regulated speed. Even the heaviest pieces are turned out in excellent shape.

It gives complete satisfaction to know that you have dependable equipment that consistently turns out your ware in fine condition, precisely on schedule. Have You?

You can rely on "Hurricane" Dryers. Let us describe to you the possibilities of these machines at your plant.

Send for complete details, NOW.

The Philadelphia Drying Machinery Co.
3351 Stokley St., Philadelphia, Pa.

WILL A DUCK SWIM?

There is only one valid reason for installing pyrometers in a brick plant and that is to reduce the cost of making brick. But will pyrometers really save money? As well ask—"Will a duck swim?" Both are rather well established facts.

The amount of the savings is not the same in all cases. This will depend on how good your present operation is and how much you use the information which the pyrometers will give you.

ENGELHARD PYROMETERS

are the logical ones for the brick plant because of their accuracy, dependability and low maintenance cost. There is no magic about their good performance. It is the result of using good thermo elements, protecting them properly and of using the best of materials and workmanship in making strong, frictionless indicating and recording instruments.

For many years their performance has shown that

*Engelhard Pyrometers are good
Pyrometers to Standardize On*

Charles Engelhard, Inc.

30 Church Street

N. Y. City

Cat. B-2.

Louisville Construction Twice Normal

Building operations in Louisville, Ky., for the month of June exceeded \$1,000,000, according to figures just issued by the City Building Inspector's office. This brings the total building permits for the first six months of the year to nearly \$9,000,000, which is about twice the normal extent of building in Louisville. The inspector's report predicts that if building continues at its present rate, and there is no reason to expect a slump, building permits for 1922 will total between four and five times the normal amount.

Pasadena's June Permits Break Record

The first half of June, 1922, in Pasadena, Cal., exceeded all previous building records in this city. Totals for buildings erected up to June 17 aggregate \$631,540, of \$79,222 more than in June, 1921.

Since the opening of 1922, Pasadena's building growth has been extraordinary, the total for the first 5½ months being \$3,843,254. Most of the permits granted by the city have been for bungalows; but a number have been granted for small factories, offices and stores.

Canadian Building Volume Increases

During June construction contracts awarded in Canada amounted to about \$36,000,000 compared with \$34,000,000 in May, and \$26,500,000 in June, 1921. This replaces the May total as the second largest monthly figure on record since May, 1914. Residential building accounted for 36.4 per cent. of the June total.

During May the wholesale price index of 48 building materials in Canada advanced slightly, and is now 79.3 per cent. above 1913, compared with a peak of 183.8 per cent. reached in May, 1920. Prices have now declined 36.8 per cent. from the high point.

Actual quotations secured in Montreal, Toronto, and Winnipeg, show a decided stiffening in certain lines due to shortage in supplies, the increase representing premiums being offered and paid by builders for early delivery.

Lower freight rates on basic commodities are promised by the railroads. This should mean another decided decline in prices in the Fall—which will go a long way towards maintaining the present activity which makes building the liveliest industry in the Dominion today.

Among Our Advertisers

Details Concerning New Models, Changes in Personnel, News Matters, etc., That Our Advertisers Believe Will Interest Our Readers.

RESISTANCE THERMOMETRY

The Brown Instrument Company, of Philadelphia, Pa., announce the publication of a new Resistance Thermometer catalog which explains the theory of Resistance Thermometry, the various types of instruments which are made, and the merits of each type, suggesting the really wonderful field which this instrument so ideally covers.

Operating as it does upon the basis of electrical resistance, rather than pressure, it does away with many of the handicaps of the pressure type thermometer. It has also in its favor very great accuracy and extremely rapid speed of action. For installation where extreme accuracy is required within a very small range of temperature, it is by far the most ideal instrument yet produced.

The Brown Instrument Company will gladly send this catalog to any executive requesting same on the regular letterhead of his company.

BRICK and CLAY RECORD

Established 1892. Now in its thirtieth year.

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Entered as Second Class Matter January 2, 1911, at
the Post Office, at Chicago, Ill., Under
the Act of March 3, 1879.

Terms of Subscription
One Year—(26 Numbers)
United States.....\$3.00 Foreign\$4.00
Single Copies.....25c

Member of Associated Business Papers, Inc.
Member Audit Bureau of Circulations

Published Every Other
Tuesday by

Industrial Publications, Inc.

Telephone: Harrison 9462

407 S. Dearborn St. Chicago

Branch Offices
New York Cleveland Kansas City

Address all communications to home office

Chicago, July 25, 1922

Vol. 61

No. 2

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Standards of Practice for Business Publications

The publisher of a business paper should dedicate his best efforts to the cause of Business and Social Service, and to this end should pledge himself: 1. To consider, first, the interests of the subscriber. 2. To subscribe to and work for truth and honesty in all depart-ments. 3. To eliminate, in so far as possible, his personal opinions from his news columns, but to be a leader of thought in his editorial columns, and to make his criticisms constructive. 4. To refuse to publish "puffs," free reading notices or paid "write-ups;" to keep his reading columns independent of advertising considerations, and to measure all news by this standard: "Is it real news?" 5. To

decline any advertisement which has a tendency to mislead or which does not conform to business integrity. 6. To solicit sub-scriptions and advertising solely upon the merits of the publication. 7. To supply advertisers with full information regarding character and extent of circulation, including detailed circulation statements subject to proper and authentic verification. 8. To co-operate with all organizations and individuals engaged in creative advertising work. 9. To avoid unfair competition. 10. To determine what is the highest and largest function of the field which he serves, and then to strive in every legitimate way to promote that function.

The EDITOR'S CORNER

What Does It Cost?

THE DIFFERENCE between price and cost was brought home to us very forcibly a few days ago. We happened to be in the office of a clay products manufacturer when he received some quotations on an electric motor. He had been using motors made by what we will call the Volt Co. He was having all kinds of trouble with blown out fuses on the smallest possible overload, with poor lubrication, with burned out bearings, and a whole series of delays and curtailment of production.

The first bid was from the Ohms Co. Their quotation contained very little but the price. It could be boiled down to say, "Our motor costs dollars." They did say, "It is the best motor made," but it was not convincing.

A second bid was from the Ampere Co. Their quotation stated the cost of their motors, and called attention to the fact that these were higher than other makes, but they spoke especially of the low charges for depreciation, wear, power requirement, repairs and lost production. The quotation also gave estimates of the amount of power and oil that their motors would require in that particular service. The quotation chiefly talked quality. From this quotation it was easy to figure the cost of the power per thousand brick produced.

The clay products manufacturer, however, was at a loss to compare this bid on quality with his past performance. He knew that his old motors were not satisfactory, and he knew the original price. He did not know what their operation was costing him.

In our subsequent talk this clay products manufacturer showed his good judgment in purchasing other things. For instance, he spoke of the poor economy of buying shoes that cost \$5 when he could obtain three times as much wear from a shoe costing \$10. In addition, the higher priced shoe would look better at all times. It was easy for him to realize the difference in wear in two pairs of shoes, but he did not keep the records that he should to determine the cost of operation of his old type of motors.

Cost finding is beneficial in a great many ways, as has been shown repeatedly, but one of the features we wish to elaborate on here is the ability to purchase new equipment or repairs with

more foresight and better economy if accurate records of performance and cost of operation of each department are kept. We believe that the clay plant will never reach its highest stage of efficiency until such items as these are made a matter of permanent record.

* * *

Test Mortar and Cement For Efflorescence

IN OUR ISSUE of April 18, due to the interest in the elimination of efflorescence and scum, we compiled a mass of informative data on this subject which has proved very valuable and of great interest to many of our readers. The questions we have received since the publication of this data have shown that clay products manufacturers have delved into the deeper points of this question.

Upon further investigation of this topic, we have found several occasions in which brick manufactured by a large company have given different results in different buildings. These brick were made from the same raw material and produced by the same machine, treated identically for efflorescence, and burned in the same kilns. However, the brick in one building frequently cause trouble with efflorescence, whereas the brick in the second building showed no efflorescence. The only difference was the lime or cement used in the construction. It has been known for a long time that the sulphates, carbonates and chlorides, of calcium, magnesium, sodium and potassium in the mortar would dissolve during a rain and later precipitate on the face of the brickwork as efflorescence. Naturally the owner of the building blames brick. This is one of the cases where clay products get an unjust and unwarranted black eye.

In these days when competition is keen, everything possible should be done to place blame of this kind where it belongs, or else to prevent the use of material which causes this trouble. As far as we know, there never has been evolved or planned any test that can be applied to cement or lime to determine in advance whether either will cause efflorescence. A clay products manufacturer should be able to specify in his bid, "Our product is not protected against efflorescence if the lime or cement to be used does not pass the test."

We call attention to these facts hoping that if anything along this line has been tried it will come to light, and if not, that they will act as an effective suggestion to some corporation or agency toward the adoption of a standard test of this character.

* * *

Conditions Affecting Fall Deliveries

IN ORDINARY YEARS during the month of September there is usually a car shortage, due to the movement of grain. This year the prospects are that this car shortage will be more pronounced and serious. There are two forces that are at work to cause this increased shortage; first, the coal strike, and the chance is that it will be settled before September 1 or shortly thereafter. The second cause is the present shop men's strike on the railroads, which is reducing the number of good order cars. It is well known that as soon as grain starts to move, and also as soon as the coal strike is settled, these two commodities will be given preference over other shipments. The hauling capacity of the railroads will also be reduced below normal if the shop men's strike is not settled in a short time.

In the words of E. J. Brunner, editor of the American Contractor, the following remedies should be adopted:

"A concerted movement should be made to load all cars to actual capacity, to load and unload promptly, and to load as far as possible in the direction of the owning railway. To do this is only sound business judgment. For the last eight years the railroads have not built enough cars to replace those put wholly out of commission due to ordinary wear and tear."

In view of this situation it is apparent that those clay products manufacturers who have contracts to deliver material by rail during the fall should make a special effort to ship this ware at the earliest possible moment, ahead of the contract date if possible. Likewise, as remarked above, every car should be loaded to full capacity if possible.

Another point that should be investigated at this time is the practicability and economy of delivering clay products to nearby points by auto truck.

Determining the Best Type Pavement

State of Illinois Builds Experimental Road to Settle
Questions of Highway Building—Road Subjected to
Traffic Conditions—Find Drainage Unimportant Factor

By Gordon Klein

DATA which will be of wonderful assistance in planning the highway program of the State of Illinois is being gathered on the Bates Experimental Road. This is a section of road a little over two miles long, on a practically level grade containing 63 different types of pavement and was built for the purpose of determining the resistance of various types of pavements to heavy motor truck traffic. The information obtained from the experiment will be applied in the designing and construction of \$100,000,000 worth of pavements to be built by the State of Illinois, in accordance with the road building program adopted in 1920 by Governor Lowden.

The Bates Road was built near Springfield, Ill., is 18 feet wide, 10,800 feet long and is surfaced with seven different kinds of materials as follows:

1. Portland Cement—
Total length, 3,850 feet.
Thickness, 4 to 9 inches.
Proportions mix, 1-2-3½.
Coarse aggregate, crushed limestone and gravel. Other variations consist in design of reinforcing material and chemicals incorporated in mix.
2. Three and four inch lug brick, constructed monolithic with a portland cement concrete base.
3. Three and four inch lug brick, constructed semi-monolithic with a portland cement concrete base. The total length of monolithic and semi-monolithic road, 1,400 feet.
Thickness of sand-cement bed in semi-monolithic section, ¾ inch.
Proportion of sand cement bed, 1 to 4.
Thickness of base course, 2 to 4 inches.
Proportions of base course, 1-2-3½ and 1-3-5.
Total thickness of pavement, 5 to 8 inches.
Coarse aggregate for base course, crushed limestone.
4. Three and four inch bituminous filled lug and lugless brick on portland cement base, 6 inch curbs.
Total length, 1,400 feet.
Cushions, 1 inch sand, 1 inch mastic, 1 inch sand cement.
Thickness of bed course, 3½ to 6½ inches.
Proportions of base course, 1-2-3½ and 1-3-5.
Total thickness of pavement, 7½ to 10½ inches.
Coarse aggregate for base course, crushed limestone.
5. Three and four inch bituminous filled lug and lugless brick on macadam base.
Total length, 600 feet.
Cushions, 2 inch sand and 1 inch and 2 inch mastic.
Thickness of macadam base course, 4 inches and 8 inches.
Total thickness pavement, 9 inch, 10 inch, and 13 inch.
Coarse aggregate for macadam base course, crushed limestone.
6. Asphaltic concrete with and without binder course on portland cement concrete base, 6 inch curbs.
Total length, 2,235 feet.
Wearing course, 2 inch Topeka without binder course, and 1½ inch Topeka with 1¼ inch binder course.
Thickness of base course, 4 to 8 inches.

Proportions of base course, 1-2-3½ and 1-3-5.

Total thickness of pavement, 6 to 11 inches.

Coarse aggregate for base course, crushed limestone.

7. Asphaltic concrete with and without binder on macadam base.

Total length, 1,200 feet.

Wearing course, 2 inch Topeka without binder course, and 1½ inch Topeka with 1½ inch binder course.

Base course, macadam from 4 to 10 inches thick, and "Novaculite" 4 inches thick.

Total thickness of pavement, 6 to 13 inches.

Coarse aggregate for macadam base course, crushed limestone.

Road Cost \$300,000

From this brief description some idea of the magnitude and scope of the test can be obtained. The cost will total approximately \$300,000, or about 0.3 per cent. of the road building appropriation.

Construction work was started on June 7, 1920, but it was some months later that the first concrete was poured. The actual road building was completed in 1921. Since that time, the road has been under constant observation for the collection of data pertaining to the behavior of roads, when not subjected to traffic.

Special attention has been given to the determination of the bearing power of the subgrade in relation to its moisture content. In this connection, it has been found that the subgrade is surprisingly uniform in moisture content. Special drainage schemes do not appear to have any effect on the moisture content. This statement has been confirmed repeatedly by the collection of subgrade samples periodically from several hundred stations on the Bates road and 60 miles of paved highway adjacent to Springfield. Naturally the moisture content varies with the seasons, but for one set of determinations the results are practically the same. The subgrade upon which these observations have been made is a brown silt loam.

Study Warping of Slabs

Considerable data has also been collected upon the warping of slab pavements. Lateral and longitudinal expansion of pavement slabs due to temperature and moisture changes is well appreciated. Longitudinal cracks are probably due to freezing subgrades, or perhaps to conditions of support caused by the warping of the slab. It seems likely that contraction due to temperature or moisture changes accounts for at least the first transverse cracks that appear in all concrete slabs. By means of brass discs of subgrade cylinders located in a row across the pavement slab, the relative movement of the slab and subgrade was determined. In many cases, these measurements indicated that the downward curling of the edges during the day lifts the center of an unbroken slab entirely free from the subgrade near the center. They indicate also a permanent depression of the subgrade at the edges of the pavement under this condition, altho a partial recovery occurs as the edges curl up



Here Are Illustrated Some of the Features of the Bates Experimental Road Tests. At the Top Left Can Be Seen the Nature of the Sub-Soil Which Is a Brown Silt Loam. Next Is a View of the Road Before It Was Subjected to Traffic. Note the Level Grade of the Highway. The Center View Shows Drilling Preparatory to Cutting Thru the Sections for Expansion Joint. Next Two Views Show on the Left, Weighing of Trucks Before Being Sent Out on the Road; the Structure to the Left in the Picture Shows the Dispatching Tower. Beside It Is an Excellent Picture Showing How the Traffic Was Applied to the Road. The Advancing Truck Is Running within Six Inches of the Edge While the Other Maintains a Distance of 2 feet, 6 inches from the Edge. The Drivers Are Guided by the Markings on the Pavement. The Two Bottom Pictures Show a Concrete and Brick Section Before the Traffic Was Applied.



Failures on Seven Different Types of Road Are Here Illustrated. From Left to Right Downward They Are: Corner Breaks After a Night Load of 6,500 Pounds, Section Is Five Inch Concrete; Asphalt Top on Macadam Base, Showing How Disintegration Occurs, the Loose Materials Being Pushed Off the Highway; Brick Section, Showing Very Clearly by the Water Standing in the Road How the Wheels of the Trucks Have Depressed the Pavement at Intervals; Maintenance Required on a Four Inch Section of Concrete, Failed During 4,500 Pounds Loading; Removing Corner Break Preparatory to Maintenance on Concrete Section; Concrete Section Which Failed During 4,500 Pounds Loading; Another Section Broken at 4,500 Pounds Loading.

Failures of Some of the Thin Slabs Shown Here Were to a Certain Extent Expected and Must Not Be Judged as Inefficiency on the Part of the Materials. Part of the Bates Road Test is Being Made to Determine the Actual Thickness Required by the Different Materials to Make a Substantial Pavement.

at night. Warping is caused by the different rates of heating and cooling in the upper layers of the slab.

Slab Pavements Warp Most

The warping phenomena is to the paving brick manufacturer of particular importance, since it has been determined on the Bates road that concrete slab and monolithic brick pavements exhibit practically the same and by far the most warping. By actual measurement, it has been found that the warping action in roads having a brick wearing surface with bituminous filler, is less than half of that in the concrete pavement. It is evident that the warping of rigid slabs away from the subgrade provides open channels for the surface water to the subgrade. This water from rains or melting snow finds its way under the edges of a slab as it curls up in the early part of the nights and later freezes, thus forming a higher support for the edges and causing an excessive lifting of the entire slab unless it breaks longitudinally under its own weight. This explains in part why heavy night traffic in slab pavements is often so disastrous to the road.

Slab Pavements Should Be Self-Supporting

Since the curling action is an inherent property of slab pavements, it has been concluded that a slab pavement must be designed strong enough to carry the traffic load without any assistance from the subgrade.

With this point in mind, a rigid pavement on the Bates Road is considered as a failure when the area of the section broken free from the balance of the pavement is so small that subsequent applications on the same wheel loads depresses the section, thus causing undue impact on the broken sections as well as on the adjoining pavement. So called flexible surfaces such as bituminous filled brick on concrete are considered failures when the base is broken as just described. The failures usually first occur at section joints and expansion joints.

In reality, therefore, the Bates road test will only determine which type of road has the greatest beam strength and this is of the most vital importance to the paving brick manufacturer. The wearing quality of a brick road which is one of its best qualities, is not given recognition. The "failure" of a brick road is in almost every case due to the failure of the foundation upon which the brick are laid. It has been proven beyond doubt that brick are capable of withstanding practically any load without excessive wear or breakage.

Trucks Follow Guide Lines

The traffic is applied by Liberty trucks which make regular trips up one side of the road and back on the other side, over the 63 sections comprising the approximate two miles, at constant speed. A squadron of 16 trucks is used in this work. Their rate of speed is between 12 and 15 miles per hour but this is checked by dispatchers at both ends of the road.

By means of guide lines painted near each side of the pavement, the trucks are held to a straight course. At the beginning of the test, the center line of travel of the outside rear wheels was 6 inches from the edge of the pavement. Later this position was changed on one side of the road to 2 feet 6 inches for the outside of the rear wheels. The object in mind in making this change was to study the results on pavements with loads applied at a certain distance from the edge. It is quite obvious now that less damage is done to a pavement by a load at this position than one applied on the edge. It seems entirely possible that the material necessary to construct a narrow slab of sufficient strength to carry given wheel loads, if used to construct a thinner slab of greater width, would result in a pavement of equal or greater durability.

Test Road with Different Loads

It has been planned to apply a certain number of trips or applications at different loadings. Up to July 1, loadings at 2,500, 3,500, 4,500, 5,500, and 6,500 pounds per rear wheel

had been completed. A part of each increment of loading with the exception of the 2,500 pound increment was run at night, to determine the effect on the curling action of the slab pavements. The 6,500 pound loading run at night was particularly disastrous to many of the rigid slab pavements.

Trained men, engineers, are constantly patrolling the road watching its behavior. A very accurate record is kept of the condition of each section. As soon as a break or crack occurs, it is measured, and plotted on a print of this section, and its subsequent development noted from time to time. All cracks and breaks are painted. Each loading increment has a different color, so that the casual observer can walk down the road and by the color of the paint tell when a break occurred.

At this time, conclusions should not be drawn as to the resistance of the different types, but it is expected that at the completion of the next increment when the maximum load allowed by the State of Illinois which is 8,000 lbs. per rear wheel, is completed, some decisive results will have been obtained.

All Thin Sections Fail

Since Mr. Klein has written this article for Brick and Clay Record we have received the following information.

On the Bates road brick sections to the number of four laid on novaculite and macadam bases and one brick section of the thin base monolithic type have to date completely failed. Asphaltic concrete on macadam base has likewise completely failed and all concrete sections five inches in depth or less, with the exception of one four inch section on four inches of novaculite, have also gone totally to pieces.

There are brick sections remaining absolutely unimpaired by traffic. There are asphaltic concrete sections as yet only lightly touched by traffic and there are remaining the heavier sections of concrete pavement which as yet show little or no yielding to the effects of traffic. Sections which have failed thus far are practically in every case those of whom failure had been expected, owing to the severity of the conditions imposed upon them.



C. B. M. A. COURTS NEWSPAPER PUBLICITY

A new method for cooperating with the brick manufacturers of the country in reaching the home builder who seeks for permanence in construction is being developed by the Common Brick Manufacturers Association of America at Cleveland headquarters.

A syndicate has been established for the preparation and publication of material and pictures, the latter including cuts of brick houses and plans for the same, with descriptive matter, the whole suggesting strongly the value of brick construction in house building.

This material will be distributed to daily newspapers in all communities, the first newspaper in each community to apply for the service to be the one to receive it. The service will be entirely free. All members of the association are being advised of the syndicate service, and thru them newspapers may be made interested also.

The material is being issued in proof form, a full page containing as many as six articles, each showing a different type of house. Mats and plates also are being prepared, so that no additional work is entailed upon the newspaper in putting the material into its pages.

The service will be issued from time to time as the demand increases for it. A feature that is of value to the members of the association is the mention of the association itself in each story, and the urge that the organization is ready to cooperate with the newspapers, or their readers, in furnishing working drawings, a feature in itself that is expected to pull for circulation for the newspapers.

Business Briefs and Trend

BUILDING TOTALS RISE—COSTS DECLINE

Since the latter part of 1921 construction costs have been fairly stable, and with no immediate prospect of their further decline, building activity was further stimulated. The abundance of cheap money was also a factor contributing to the building boom that has swept over the country since last March. Measured by the value of the permits, the amount of building under way at present breaks all previous records. The total value of the permits for the cities enumerated is nearly three times that of the first months of 1914, but part of this increase is due to the in-

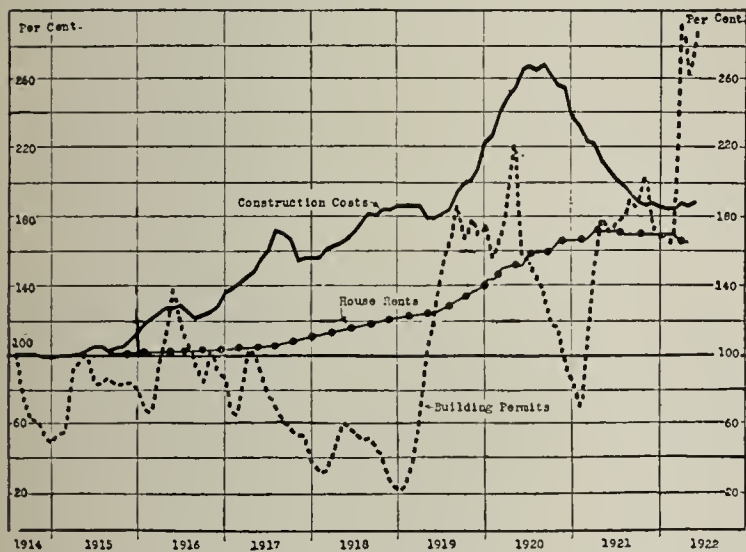


Chart Showing Fluctuations in Construction Costs, Building Permits and House Rents During Last Eight Years.

crease in the cost of building material and in the wages paid in the principal business trades. The combined index for wages and materials on which the curve of construction costs in the accompanying chart is based is now a little less than twice that of 1914. Meanwhile house rents for the average wage-earner, as computed by the National Industrial Conference Board, have declined slowly from the peak of 71 per cent. above the pre-war level, reached in March, 1921, to 65 per cent. above that level.—N. Y. Evening Post, reprinted in the Industrial Digest.

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TREND OF BUSINESS CONDITION

The following figures from the Iron Trade Review are a good index of the trend of business. Notable among them are the building figures which show an increase of \$108,440,000 over those of June a year ago.

	June	Month before	Year ago	Monthly average 1913
Dodge building awards	\$343,440,000	\$362,590,000	\$235,000,000	\$71,450,000
Business failures:				
Number	1740	1960	1320	1336
Liabilities	\$38,242,000	\$44,402,886	\$34,639,000	\$22,723,000
Excess of exports	\$54,000,000	\$104,000,000	\$124,798,393	\$54,406,000
Excess of gold imports	\$5,587,339	\$10,630,000	\$57,108,865	\$630,716
Bureau of Labor Price Index	148	143	145	100
Bradstreet's Price Index	131.0	129.2	115.9	100
Economist's British Price Index	4389	4372	4810	2717
Cost of Living Index	154.8	154.7	167.6	100
New incorporations	\$297,557,000	\$988,135,000	\$675,977,000	\$172,301,000
Railroad net earnings	\$60,880,000	\$50,256,800	\$37,081,000	\$59,990,000

*Monthly average export prices. †May.

SQUARE FOOT BUILDING COSTS STILL HIGH

Cost per square foot of eight different kinds of buildings from figures compiled by the F. W. Dodge Co.'s statistics of contracts awarded in 27 northeastern states is given here. These costs are average, and would indicate that there has as yet been no definite decline, either in the aggregate or in any one of the classes listed.—Engineering and Contracting.

	Cost per sq. ft.			1922		
	1919	1920	1921	Jan.	Feb.	Mar.
Business	\$3.66	\$3.88	\$5.09	\$4.92	\$6.26	\$5.56
Industrial	3.34	4.61	4.83	6.49	4.44	5.82
Residential	3.51	4.11	4.29	4.19	4.59	4.01
Educational	5.20	6.56	6.01	6.03	5.64	5.04
Hospitals, etc.	8.87	7.57	6.57	7.39	7.79	6.48
Public	6.51	6.60	7.38	5.47	7.66	5.05
Recreational	5.50	7.37	6.21	6.95	5.01	6.04
Religious	7.04	8.66	6.56	7.40	7.76	6.13
Average	\$3.74	\$4.91	\$4.91	\$4.88	\$5.10	\$4.66

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COAL STRIKE CLOSES MANY PLANTS

The Standard Clay Products Co. has been forced to close its plants at Oskaloosa and Harvey, Iowa, because of an insufficient coal supply. This action was precipitated when operations at every coal mine in Mahaska County ceased on June 26.

Other sections of the country are also feeling the pinch of the coal strike. One of the East Peoria plants of the Peoria (Ill.) Brick & Tile Co. has been compelled to shut down, and another plant will close as soon as its fuel supply is exhausted. More than a hundred men will be thrown out of employment.

C. C. Baird of Camp Brothers Co., Mogadore, Ohio, states that brick manufacturers in the Akron, Ohio, district may be forced to suspend operations during the first part of August unless the coal strike is settled. The shortage has caused an increase in price of coal from \$12.75 to \$15, and operators are withdrawing from the market. Camp Brothers had maintained 100 per cent. production until the strike.

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CHANGES IN FARM SALES AND PURCHASES

The accompanying graph shows the variation in the average volume of farm sales and of farm purchases for each month in a year. This is especially interesting at this time to those branches of the clay products industry who sell direct to the

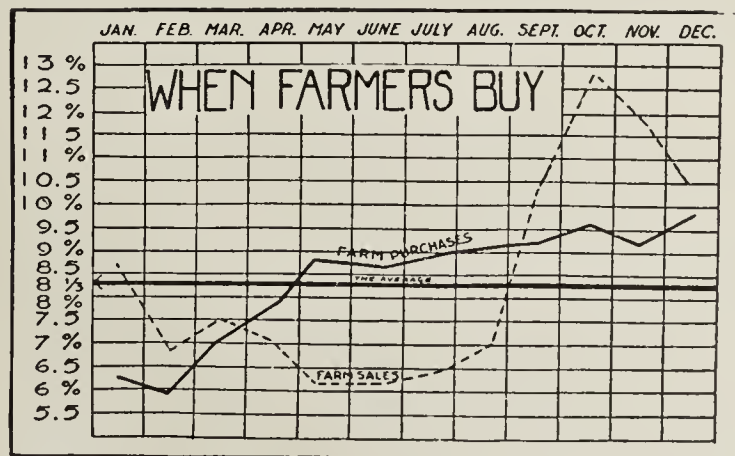


Chart Showing Fluctuations in Farm Purchases and Sales During the Various Months in a Year.

farmers. It is also interesting to the other branches because the Department of Agriculture has estimated that the recent rise in prices of farm products has increased the purchasing

power of the farmer almost 25 per cent., and further because it is estimated that the farmer class of purchasers totals almost 35 per cent. of the purchasing power of the country.

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CLAY PRODUCTION DROPS IN 1921

The output of clay mined and sold as clay in the United States, in 1921 was 1,716,746 tons, valued at \$6,025,300, or \$3.51 per ton, according to a preliminary report of the United States Geological Survey, Department of the Interior. This was a decrease of 45 per cent. in quantity and 48 per cent. in value as compared with 1920. These figures do not include the much greater quantities of clay burned into clay products by the producers themselves.

The production of kaolin, the clay that is used in making high-grade pottery and porcelain as well as paper and other products, was 162,726 tons, valued at \$1,579,163, a decrease of 39 per cent. and 45 per cent., respectively, as compared with 1920. The clay of largest production and value is fire clay. The sales of fire clay in 1921 amounted to 1,195,861 tons, valued at \$3,560,373, a decrease of 49 and 52 per cent., respectively, as compared with 1920. The output of every kind of clay as classified by the Geological Survey in its statistical report decreased in quantity and value in 1921 as compared with 1920.

The imports and exports of clay also decreased in 1921 as compared with 1920, and the decrease was proportionally greater than the decrease in the domestic production. The total imports of clay were 208,915 tons, valued at \$1,974,685, a decrease of 48 per cent. and 51 per cent., respectively. The imports of kaolin, the chief clay imported, were 162,906 tons, a decrease of 55 per cent. as compared with 1920.

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SALES IN BASIC INDUSTRY INCREASING

The steel market is considered a good barometer of general business conditions. The U. S. Steel Corporation has reported the greatest increase in orders of this year during June, a gain of 381,303 tons. The production is close to capacity, and some of the mills are sold out for three to six months ahead.

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CEMENT PRODUCTION INCREASES

Production of portland cement showed a slight increase in June over the previous month of May. Shipments showed a substantial increase, numbering over 700,000 barrels. At the end of the second quarter for 1922, production was 436,000 barrels ahead of the first half of 1921. Shipments for the first half of 1922 exceeded those for the same period last year by 6,827,000 barrels. Stocks dropped approximately 2,200,000 barrels in the month of June.

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THE COAL MARKET

Coal is scarce, very much in demand and prices are going higher almost daily. Reserve stocks are being rapidly depleted, throwing consumers into the market. The demand is for immediate delivery and apparently very urgent. The price does not matter much; it is coal that is wanted. With a limited supply coming thru, the price is advancing rapidly. Western Kentucky productions bringing \$5.50 a ton at the mines. In Eastern sections, where an attempt is being made to adhere to the Hoover maximum price, the urgent demand is likewise responsible for increased prices, altho not to the extent as on the Western Kentucky coal.

Appeals for coal are coming from all sources, particularly the railroads. The docks at the head of the lakes are also in open distress. Reports are to the effect that dock operators are offering premiums of 50 to 75 cents a ton over the Hoover

maximums and in other instances at almost any price, but they are said to be meeting with little success. Boats on the Great Lakes are beginning to be forced into idleness and the situation is becoming more acute daily.

Operators are compelled to reject all offers, altho carrying premiums. They are declared to be swamped with orders and unable to fill any of them, due to low production, which has been disagreeably augmented by the rail strike. In Eastern Kentucky, all of the larger producing companies are said to be booked with orders up to August 15 and are behind on all or most of them.

* * *

CANADIANS GET 7½% RATE CUT

A reduction of 7½ per cent. in the railway rates on basic commodities, to become effective August 1, has been ordered by the Board of Railway Commissioners of Canada.

The decrease applies to forest products, building material, brick, cement, lime and plaster, potatoes, fertilizers other than chemicals, pig iron, billets, ores, wire rods and scrap iron. Grain and flour rates were fixed by Parliament during the session just closed.

The board has no jurisdiction over the Canadian Government railways, and no directions were made regarding that system.

* * *

TO SPEND \$720,000,000 ON ROADS

Thomas H. McDonald, chief of the U. S. Bureau of Public Roads, has estimated that \$720,000,000 will be expended this year for highway construction and maintenance outside of cities. This compares with \$600,000,000 in 1921, \$500,000,000 in 1920, \$389,000,000 in 1919, \$286,000,000 in 1918 and \$280,000,000 in 1917. The figures for these years are especially significant when compared with the \$60,000,000 total in 1904.

H. Eltinge Breed, consulting highway engineer, New York City, in a recent issue of Engineering News-Record, stated that for the next half dozen years there will be a progressive increase in the annual expenditures for highway improvement, and that after that time and for many years to come, there will be no falling off in the amount of work done or money spent.

The tremendous impetus given road building in the last two years can undoubtedly be attributed in the main to two reasons. The direct cause is probably the Federal Aid highway legislation which Congress has enacted, and has now under consideration. The other reason is the increased use of the automobile, both for pleasure and for freight carrying purposes, which has awakened municipal, county and state officials, and forcibly brought to their attention the necessity and value of a good highway system.

* * *

STRIKES HOLDING BACK BUSINESS

Figures so far received by the Department of Commerce on commercial and industrial movements during June indicate that the improvements in business noted in earlier months continued; however, further advances were not so great as in the preceding months. A part of this was no doubt due to seasonal slackening but more especially to the effects of the long continued coal strike and the uncertainty connected with the railroad difficulties. The coal strike which has now been in effect nearly 16 weeks has so far caused but little disturbance to industry. The reason for this lies in the very heavy stocks which were built up in the early months of this year. As a matter of fact, bituminous production for the first half of the present calendar year has been less than five per cent. below the output in the corresponding period a year ago. In recent weeks some of the smaller industrial plants have begun to experience a fuel

shortage. This, together with the realization that even after mining has begun it will be some time before an even distribution can be established, has had a deterring influence on industry.

If a satisfactory settlement of the present labor difficulties can be reached in the near future, there is every reason to believe that business will continue on its present level, or even to increase in volume. The failure to reestablish European economic equilibrium may continue to limit our foreign trade in that direction, but domestic conditions as well as those in many other parts of the world are favorable to further expansion.



U. S. EXPORT TRADE INCREASING

For the fiscal year ended June 30 our world trade totaled, in round figures, \$6,378,000,000, according to a statement by the commerce department recently. While this is a decline of 37 per cent. from 1921, it is an increase of 51 per cent. over

1914. For the last year exports totaled \$3,770,000,000, a decline of 42 per cent. from 1921, but an increase of 64 per cent. over 1914. Imports were \$2,608,000,000, a decline of 29 per cent. from last year, but an increase of 36 per cent. over 1914.

The remarkable fact, however, is in the comparative showing in the balance of trade. For last year this balance was \$1,162,000,000 in favor of the United States. While this is a decline of 60 per cent. from 1921, it is an increase of 198 per cent. over 1914. In other words, we profited nearly three times as much by our world trade last year as in the last pre-war year, 1914.

Furthermore, our exports for June, this year, at \$334,000,000 were the highest since last October. Imports at \$260,000,000 were the highest since December, 1920. Thus, while buying and selling more than recently, this country is comfortably maintaining its position as the world's chief creditor nation.



The Building Situation

BUILDING CONTRACTS awarded during June in the 27 Northeastern States, according to the F. W. Dodge Company, amounted to \$343,440,000. Except for the record figures of April and May of this year, this is larger than any previous monthly total. It is only 5 per cent. under the record May figure, and shows a 52 per cent. increase over June of last year.

The continued high rate of activity has brought the total amount of construction started in the first six months of this year up to \$1,690,984,000, which is by far the highest figure for the first half of any year. It is 59 per cent. greater than the figure for the six-month period of 1921.

In the six months' record are the following items: \$682,663,000 for residential construction, an increase of 89 per cent. over the corresponding period of 1921; \$288,932,000 for public works and utilities, being 19 per cent. over last year; \$280,329,000 for business buildings, 94 per cent. more than last year; \$164,641,000 for educational buildings, 58 per cent. over last year; and \$123,181,000 for industrial plants, an increase of 42 per cent. over the corresponding period of last year.

Contemplated new work reported from January 1 to July 1 has amounted to slightly over three billion dollars, compared with \$1,690,000,000 for work actually started in the same period.

It seems not unlikely that the remaining summer months may show a slight falling off from the extreme high rate of activity that has prevailed during the second quarter of the year. However, there are localities in the Middle West where the revival has not yet gained the headway that it has in the East. These places may be expected to show increases that will in a measure offset declines elsewhere.

Many new projects are maturing in New England and speculative construction is becoming more pronounced. Weekly contracts are running to an aggregate of \$7,000,000 to \$8,000,000 for all classes of operations, as compared with totals of \$4,000,000 to \$6,000,000 at this time a year ago. June building at Boston reached \$3,562,100.

With increasing building permits at Boston, Worcester, Fall River and other leading Massachusetts cities, Connecticut districts are running a close second. Taking the largest cities, such as New Haven, Hartford and Bridgeport, the volume of work is now practically double that of a year ago; the first week in July showed a valuation of new work of \$541,537, as compared with \$229,266 in the same week of 1921.

The Building Trades Employers' Association, Boston, has

come to an agreement with employees, following a year of open shop operation, and a new contract has been made to run until April 1, 1923. Under the new agreement, bricklayers and plasterers will receive \$1.12½ an hour, and the majority of skilled workers in other lines, \$1 an hour.

Construction Increases At New York

Each month at New York is recording a substantial increase in construction operations. In the Borough of Manhattan plans were filed for 105 new buildings during June, valued at \$17,008,960, as compared with 79 such structures in the same month of a year ago, costing \$10,906,250. Figures for the first six months of the year show contract awards to an amount of \$305,720,400, or approximately twice the sum for the first half of 1921. Of the total noted about \$180,000,000 was for residential work.

The fuel situation is reaching a serious point with producers up the Hudson, and with coal scarcity now growing pronounced, some yards are resorting to cord wood, briquets, low grade soft coal and coke. The latter material, however, is just as high in price as good coal, and now becoming equally as scarce. Future production at the desired point begins to look doubtful, and current shipments of new brick leave little chance for reserve. A heavy fall demand is likely to bring about real shortage and higher prices.

New Jersey Cities Gain

New Jersey districts continue to record a gain in building work, despite the hot weather, and the month of July is developing encouraging totals. Atlantic City, Jersey City, Paterson, Bayonne, East Orange and other points are well over 100 per cent. ahead of the figures of a year ago. Trenton has produced a volume of work amounting to \$2,215,000 in the six months period just ended.

Philadelphia Achieves New High Record

The month of June at Philadelphia, Pa., broke all previous records for construction operations in the city. A total of 1,492 permits were issued, with valuation reaching \$13,190,220. This amount is \$4,318,000 in excess of the May figures. The totals for the first six months of the year also, are of record-breaking proportions, reaching a sum of \$52,428,645, covered by 7,244 permits. The first six months of a year ago registered an amount of but \$16,617,000. During the January-June

(Continued on page 130)



The Dixie Brick Co., Columbus, Ga., the Home of the Minter System of Continuous Burning in Periodic Kilns.

Increasing Kiln Volume Without More Kilns

**Continuous Burning In Periodic Kilns Saves Fuel and
Speeds Up Burning—Ware Dried by Waste Heat—Will
Work on Practically Any Plant with Moderate Changes**

NOW that there is such great demand for kiln volume, and there is a dire need to conserve, as much as possible, the small supply of fuel available and, too, to somehow or other compensate for the excessive prices paid for coal which is now procurable only at high cost, the clay plant operator is intensely interested in any system or method that would help solve this situation.

That there are available such systems is known to many in the industry, altho as yet they have not gained the popularity and recognition that they eventually will be bound to achieve. When a system is designed that does not necessitate the junking of a lot of present costly equipment—will not revolutionize or interrupt present production methods—and yet will lower operating costs considerably—such a system is certain to be given serious consideration by the industry.

Big Savings Have Been Made

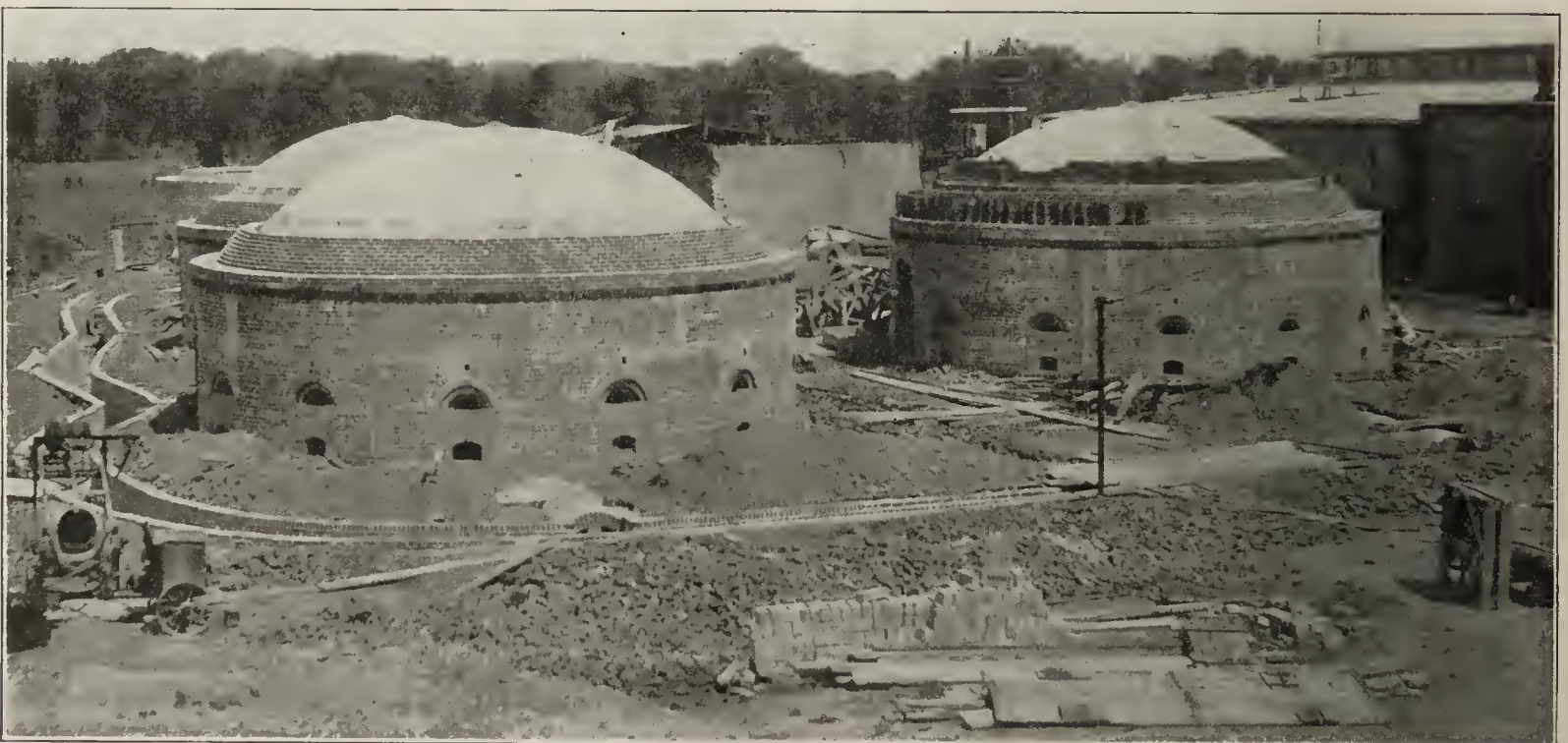
One such system which might well be considered in the light of the above specifications is the Minter System of

continuous burning. It simply embraces the principle of continuous burning in periodic kilns. Kilns already on the plant, with the addition of a specific flue system and fans, may be operated on the continuous system, and gain the advantages which accrue to such a principle of operation, such as reduction in fuel requirement, speed of burning and increased kiln capacity.

According to records of present performances, it is capable of cutting fuel costs on round down-draft kilns fully \$75 to \$150 per burn. Besides this, it enables a plant to get a quicker kiln turnover, thereby increasing the kiln capacity of the factory and with no sacrificing of quality—all of which mean additional savings.

Record of a Recent Installation

The Dixie Brick Co., a new plant near Columbus, Ga., has one of the most recent installations of the Minter System. This plant was recently built according to high standards of plant design and equipment, the entire plant being designed by the Minter Engineering Service.



A Good View of Minter Kilns and Flue System Under Construction. The System Will Work Practically as Well on an Old Plant as on a Plant Specially Built to Operate According to It.



This Structure Houses a Nine Tunnel Minter Drying System Operated in Conjunction with the Minter System of Burning. No Auxillary Furnace Is Required by This Dryer. Only One Fan Is Used. Cost of Operation of Dryer Has Been Computed at 40 Cents Per Hour.

The factory is equipped with nine 27-foot diameter Minter round down-draft kilns, from which a production of 60,000 brick per day is obtained. Ordinarily round kilns to the number of 16, it is estimated, would be required to turn out the same production.

Low Fuel Requirement

The fuel consumption on the kilns, and this includes the heat required for drying, is 520 pounds per thousand brick, an extremely low figure.

For drying, a Minter recirculation dryer is used, and the heat from cooling kilns is employed. Only nine tunnels are required for drying the 60,000 brick. This small number of tunnels is said to be due to the fact that this dryer enables the brick to be dried very rapidly.

A unique feature is the use of the surplus air above that required for drying and water-smoking, which is supplied beneath the boiler grates by the waste heat fan in quantities varying from 3,000 to 5,000 c. f. m. at a temperature of 240 deg. F. Obviously this system is effective in increasing the efficiency of the boiler room.

At the Citadel Brick & Paving Block Co., Ltd., Quebec, the introduction of the Minter System of burning resulted in a total monthly saving of \$5,328. This plant burns its brick with 508½ pounds of coal per thousand brick. Coal costs \$16.30 at Quebec.

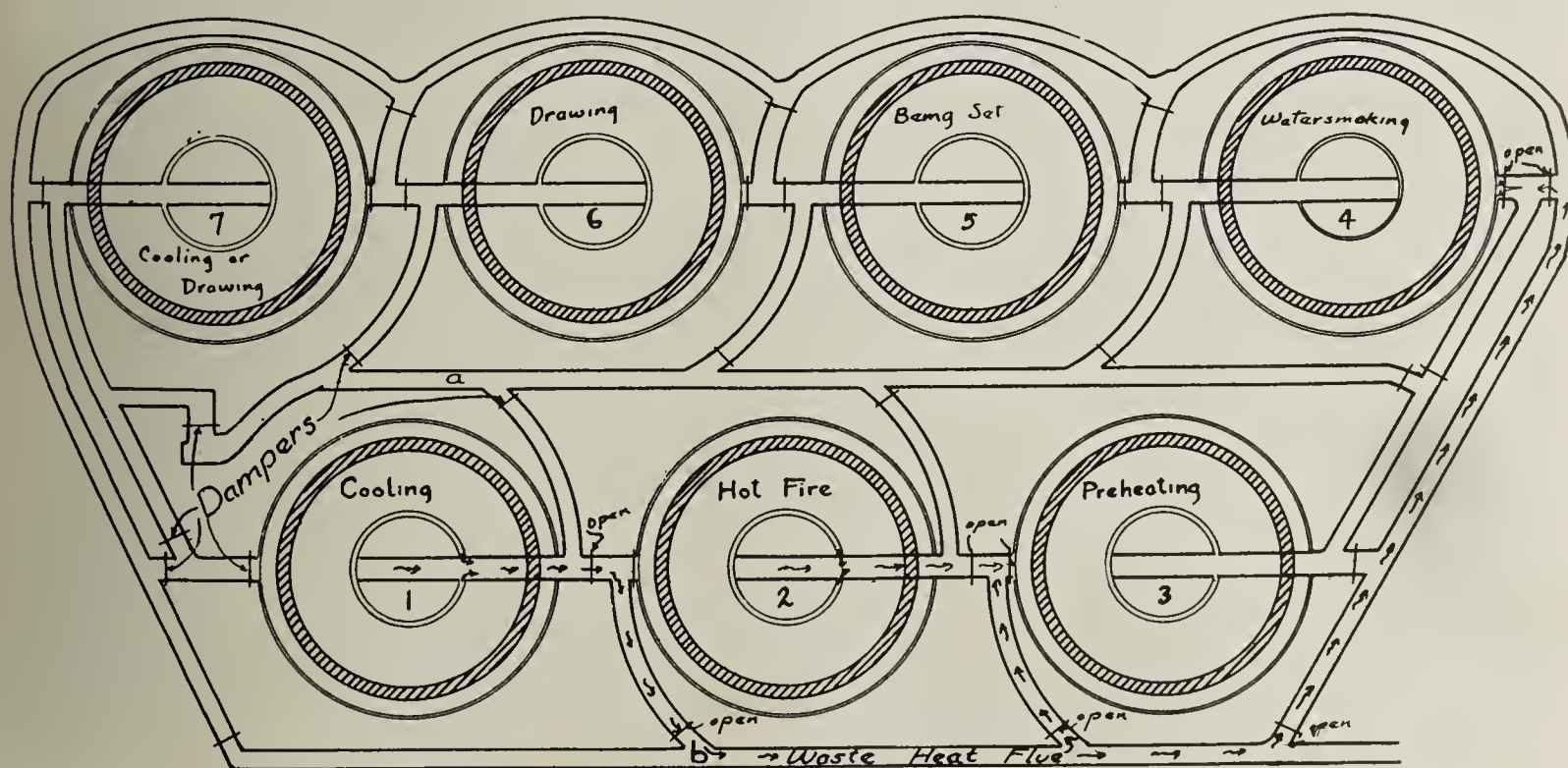
At the Merkley, Ltd., plant in Ottawa, Ont., the total fuel requirement was cut down to 519 pounds of coal per thousand brick.

Need Only 400 Pounds of Coal Per M.

The Cherokee Brick Co., of Macon, Ga., is another plant to have made a similar great saving, only 400 pounds of coal being required to burn 1,000 brick. The Minter System usually is operated in units of seven or nine kilns. When the kilns are constructed by Minter System they are built according to the description given later. Where the kilns are already standing changes are made to conform to the lines that would enable the adoption of the system.

The fire boxes are of the grateless furnace type with coking table and built as a separate unit, enabling them to be renewed without touching the main kiln structure. The external flue system is designed to do any one of three things at different stages of the burn. It discharges the gases from the kilns into the induction flues, (a), during water-smoking; it discharges the gases into the waste heat flue, (b), during cooling, or it discharges the gases into the flue, (c), leading into the next kiln ahead of the burning kiln for preheating. In each burn, each flue is used in some stage of the burning process.

The draft is produced by a 140-inch multi-blade induction fan driven by a 25 H. P. motor. The flow of air produced



A Diagram of the Minter System of Burning Showing Flue Arrangements and Method of Transferring Heat. This Method of Arranging the Kilns Is Ideal, but the System Can Be Adapted to Other Arrangements.

by this fan is directed from kiln to kiln and from flue to flue by almost air-tight dampers. The dampers can be regulated to give instantly just the draft required according to the stage of the burn thru which each kiln is passing and the atmosphere required in the kiln.

How System Operates

Control of the distribution of heat is by a series of flues and openings built in them, and only the manipulation of dampers is required in the regulation of this system. Outside of this, the only attention necessary is that required to remove any obstruction that may get into them, and this may be done easily from the outside.

The continuous system of burning is carried on thru a regular cycle of operation in the following manner:

Kiln No. 1 has just finished burning and is cooling.

Kiln No. 2 is on hot fire.

Kiln No. 3 is preheating entirely thru the agency of waste gases from Kiln No. 2.

Kiln No. 4 is water-smoking with the waste heat obtained from cooling Kiln No. 1.

Kiln No. 5 is being set with green ware and is prepared for firing.

Kiln No. 6 drawing.

Kiln No. 7 cooling or drawing.

Now to return to Kiln No. 1, this kiln is at high temperature and is furnishing waste heat from its cooling ware to Kiln No. 4, the hot gases passing thru the flues, fire boxes and into the kiln.

Kiln No. 2 is being fired to maturity in the regular manner by the use of live fuel in the fire boxes. These furnaces may be fired by the aid of forced draft which is an available means of economy where conditions require it, such as in the use of a very high-priced fuel or low-grade fuel that could not otherwise be utilized. In such an event, part of the forced draft is supplied from the atmosphere and part from the cooling Kiln No. 1. To accomplish this a portable fan is placed over the damper and the highly heated air is drawn from Kiln No. 1 thru the direct connecting flue

with Kiln No. 2 and forced thru the flue circling the kiln and then into the furnaces of Kiln No. 2.

Ware Heated to Red Heat Without Firing

Kiln No. 3 is receiving all of the waste heat of combustion from Kiln No. 2, and in addition it is receiving a portion of the waste heat from the cooling Kiln No. 1. Before a pound of fuel is burned in the furnace of this kiln, it will have attained a low red heat, absorbed from the highly heated gases that pass thru it and which were formerly wasted.

The ware set in Kiln No. 4 is water-smoked to a bone dry state and without the expenditure of a pound of fuel. All of the heat used is secured only from the cooling Kiln No. 1. No heated gases of combustion from Kiln No. 2 are used, and therefore whitewashing is minimized, and none can occur from the sulphur gases in the water-smoking heat.

The whole system was designed to give absolute control of every stage of the burning process, and will therefore meet the requirements of any material. The system works well without the portable auxiliary fan, but more economically with it. The portable fan is designed to stand as high a temperature as the grate thru which the draft is forced. Furthermore, the use of the portable fan gives better combustion, produces a continually oxidizing atmosphere, burns any grade of fuel, excludes atmospheric air from the kiln under fire, decreases smoke, and when properly fired practically eliminates it; it also utilizes a portion of the heat from the preceding kiln for preheating the air for the combustion of fuel in the burning kiln, produces and aids in the distribution of heat thruout the burning kiln, and gives a more even distribution of heat by destroying the partial vacuum within the kiln under fire. It supplies just the volume to the burning kiln that is being removed by the induction fan, thus producing a balanced draft quicker and results in more even burns thruout the kiln.

Burning Done in Fast Time

In the continuous round down-draft system some difficulties of the periodic kilns are overcome in the water-smok-



Kiln Bottom.
DIXIE BRICK CO.

Kiln Bottom Used by the Minter System. Note the Arrangement of the Flue Holes. This Particular Bottom Has Been in Use Many Years.

ing and preheating by having a strong draft. The control is positive, the waste heat is pure and the temperature and distribution absolute. Any desired kiln temperature may be obtained and there is no smoke or sulphur in the dryer. Face brick, common brick, or hollow building tile may be burned alternately, but in burning building tile the waste heat is reduced on account of the smaller tonnage. The kilns may be burned independently of each other. When the sulphur is burned out, the heat may be used by the dryer, by the water-smoking kilns or split up.

System Is Flexible

The flexibility of the system is wide because just as good ware can be produced when operations are temporarily interrupted as when the operation is continuous. In case something interferes with the continuous operation of the system, the kilns are simply operated as periodic down-draft kilns in the same manner as on a good many plants having such equipment. The principle of continuous burning in down-draft kilns may be applied to five, seven, nine or more kilns and where the number is large, two fires can be employed. In instances where the round down-draft kilns are too close together to permit the construction of the circular flue on the outside, it is placed within the kiln with equal success.

Some of the salient features of the Minter System are that it saves fuel, saves time in burning, and can be employed to increase the kiln capacity of a plant without the addition of a single kiln, by reason of its speeding up the burning time. Any fuel may be used in burning and either an oxidizing or reducing atmosphere can be produced. The system can be applied to a battery of kilns without much interruption of operation, since the kilns can be equipped in succession and put into operation as finished. Most any present kiln yard arrangement can be adapted to this system.



THE NEW CLAY PRODUCTS CYCLOPEDIA

The 1922 edition of the Clay Products Cyclopaedia came from the press a short time ago. This book has been published by the same organization as publishes Brick and Clay Record, for the purpose of keeping in permanent form all the available authoritative information that is necessary from day to day for all the executives around the clay products plant. The book is essentially a cyclopaedia, containing definition of 752 processes, materials and pieces of equipment which are used in the industry. This section occupies 117 pages and is amply illustrated.

The Statistical Section covers 75 pages of data for every part of the plant, information that is required, and absolutely necessary from time to time. For instance, the foreman can find the table on melting temperature of cones, how to mesh gears, factors of die operation, and methods of setting all types of kilns. Those who mix glazes will be interested in the materials used in manufacturing pottery, description of decalcomania, frits, feldspar, decorative coloring materials and other items. The power plant engineer will find information on draft gages and meters, flue gas analysis apparatus, heat value of coal, comparison of fuels, and ample similar information. The engineer of construction will be interested in the relation of air to the dryer, methods of construction of conveyors, laying out foundations, dryer construction, and design and construction of kilns. The superintendent will look up the speed of auto trucks, belt data, vitrification point in burning, operation of kilns, data on locomotives, and so forth. A salesman will be interested principally in the tests for the class of material he is selling. All standard tests for clay products are included. Those contemplating a new plant will find most valuable the items on prospecting and testing for clay, classification of clay de-

posits and the requirements that should be investigated concerning clay plant location and design. The purchasing agent will be interested especially in the listings of the names of manufacturers and distributors of all products, which are placed under each item in the Definition Section.

The owner or manager of a plant will be interested in practically all of the above items, and in addition, in the index showing the materials, processes and equipment used in each department. This has been added in order to enable anyone to learn all of the factors affecting the production of each department. It is an easy matter to determine how to improve department or plant conditions with this index. These items taken at random, show a few of the points that appeal to everyone interested in clay products.

There are included 52 catalog pages which give in detail specific points about the equipment of various manufacturers. This is information that could not be presented in the editorial section of the book. The Catalog Section was added primarily to keep all information bound in one book for instantaneous reference and to eliminate any chance of loss of a regular catalog. Many times the loss or misplacement of a catalog causes serious delay and expense in purchasing additions or repairs.

The Cyclopaedia is published by the Industrial Publications, Inc., 407 S. Dearborn St., Chicago, and is sold for \$3.00 per copy.



EASTERN RED DIVISION MEETS

At the invitation of the Bradford, Pa., face brick manufacturers, the Eastern Red Division of the American Face Brick Association held its regular monthly meeting in that city on Friday, July 14, 1922. Special entertainment features had been provided by the local plants, Bradford Brick & Tile Co., Alumina Shale Brick Co., and Penn Brick Corporation.

The division assembled at the Hotel Holley at 9:30 a. m., where automobiles were in waiting to convey the party to the plant of the Bradford Brick & Tile Co. The plants of the Alumina Shale Brick Co. and the Penn Brick Corporation were also inspected.

Upon completion of the tour of inspection the division was taken to Murty's Grove, a short distance from Bradford, where an excellent fish and chicken dinner awaited the hungry manufacturers. A short business session was held before lunch.

John B. Sheehan, who for approximately the past two years has served as general manager for the Penn Brick Corporation, and who has resigned to take up residence in the State of Oklahoma, was presented with a handsome black traveling bag as a token of the esteem and good wishes of the division. Elisha Kane, Kushequa Brick Co., made a brief presentation speech and Mr. Sheehan responded with an expression of deep regret at the severance of the long and pleasant relationship with the manufacturers of this group.

Those present were:

C. C. Stratton, Alumina Shale Brick Co., Bradford, Pa.; C. P. and C. F. Austin, Binghamton (N. Y.) Brick Co.; W. A. Hanley, Jr., Edw. Conley and D. B. Hendryx, Bradford (Pa.) Brick & Tile Co.; C. H. Locher, Jr., Glasgow (Va.) Clay Products Co.; A. B. Lyon, Hydraulic-Press Brick Co., DuBois, Pa.; Walter Parsons, Keystone Brick Co., Watsonstown, Pa.; A. F. Humphrey, Keystone Clay Products Co., Greensburg, Pa.; Elisha K. Kane, Kushequa Brick Co., Kushequa, Pa.; W. W. Swengel, Lock Haven (Pa.) Brick & Tile Co.; A. C. Teyling, Mill Hall Brick Works, Lock Haven, Pa.; Jas. Prindible, Patton Clay Mfg. Co.; Messrs. Reedy and Shoreman, Penn Brick Corp., Bradford, Pa.; Geo. A. Bilque, Gloninger & Co., Pittsburgh, Pa.; C. Forrest Tefft, Ridgway Brick Co., Watsonstown, Pa.; J. F. Stuempfle, David Stuempfle's Sons, Williamsport, Pa.; Mr. Wynn, Wynn & Starr, Trafford, Pa.; John B. Sheehan, Bradford, Pa.; Robert W. Childs, general counsel, the American Face Brick Association; Harry L. Baldwin, division secretary, A. F. B. A.



HOLD FINE MEETING IN SOUTH

Approximately 60 manufacturers from Virginia, North and South Carolina, and Georgia gathered at Statesville, N. C., on July 11 at a meeting of the Carolina-Virginia Brick Manufac-

turers' Association. The meeting was characterized by all attending as the most successful local meeting ever held.

The program of the meeting was very informal, a luncheon being given at the Vance Hotel by J. C. Steele & Sons, following the inspection of the local plant of the Statesville Brick Co. and the machinery plant of J. C. Steele & Sons. After the luncheon, H. W. Conway and Charles A. Bowen of the Common Brick Manufacturers' Association addressed the meeting. After the informal talks and general discussion which followed these addresses, the party was driven to the Buffalo plant of the Statesville Brick Co., 12 miles west of Statesville, making an inspection of operations there.

A partial list of firms represented, in addition to most of the manufacturers from the Carolinas, follows: Salem (Va.) Brick Works; Adams Payne & Cleaves, Roanoke, Va.; Redford Brick Works, Richmond, Va.; Southside Brick Works, Richmond; Payne & Sons, Drakes Branch, Va.; Watson Fitzgerald Brick Co., Danville, Va.; Nansemond Brick Co., Norfolk, Va.; Eureka Brick Co., Norfolk; Atlantic Brick Co., Norfolk; Georgia-Carolina Brick Co., Augusta, Ga.; Merry Bros. Brick Co., Augusta; Gold Brick Co., Athens, Ga.; Columbus (Ga.) Brick Co., Gamble Stockton Co., Jacksonville, Fla.; Dr. Robert C. Wilson, University of Georgia.



NEW YORK PLANTS FACE SHUT DOWN

Building material supply and demand began to feel the real pinch of the rail and fuel strikes toward the week end, says

the Dow Service daily building report of July 15, 1922.

Brick manufacturers in the Hudson river district were hardest hit. Many manufacturing establishments supplying this market came to the point of burning brick that had been set in kilns and were unable to do so. Fuel of any kind could not be obtained even tho \$13 a cord was offered for wood that ordinarily is readily purchasable at \$5 a cord, altho it moved up to \$9 last spring. In desperation some brick manufacturers bought domestic size nut coal to keep their kilns burning. Some even used coke.

In spite of this approach to possible cessation of brick supply prices in the wholesale market dropped back to \$20 a thousand at the plant. The market absorbed every barge load of brick as fast as it came in, there being in all about 17,500,000 arrived in the week from Thursday, July 7, to Thursday, July 13, which was the week in which the greatest amount of brick business was transacted so far this year.

The next serious crisis in the eastern building construction market is apparently due for consummation within the next few weeks in window glass, brick, hollow tile and timber among the lumbers.



CONNECTICUT PLANTS WORKING CAPACITY

Secretary H. F. King, of the Connecticut Brick Manufacturers' Association, Pearl Street, Hartford, reports all plants of the association are producing at top speed. Demand for brick is heavy and there is no surplus stock on hand.



Says Brick Roads Do Not Stand Wear of Heavy Traffic

"BRICK ROADS WEAKEN, state tests reveal." This unqualified statement appeared as the title of an item in the July 12 issue of the Chicago Daily News. The item spoke of the Bates experimental road near Springfield, Ill., and continued: "Brick pavement does not stand the wear and tear of heavy traffic on country highways as does asphalt or concrete." This apparently relegates brick to an unenviable position among hard surfaced pavements, and if it is to be believed, is the knell of doom for the hopes that paving brick manufacturers have of marketing their product in competition with other road surfacing materials.

What seems to us peculiar is that, despite the fact that the Daily News has pronounced brick roads inferior, this type of surface has to its credit records of service in practically all parts of the country which have never been equaled or even approached by any other type of pavements. The over enthusiastic Daily News says in the subtitle, "Asphalt or concrete found more durable under heavy country traffic." Then further on, down at the bottom of the item, these statements are made: "All the brick sections laid on macadam bases have failed to stand up under one-third of the legal load limit. All brick sections except two broke under a rear axle load of 9,000 pounds.

Concrete Roads Also Fail

"All pavements of any sort which were laid on concrete bases not more than five inches thick have failed to withstand a load of 11,000 pounds on the rear axle, which on trucks under present state laws may carry a load of 16,000 pounds.

"All pavements laid on six inch concrete bases have proved unable to carry axle loads of 13,000 pounds."

And yet, "Brick pavement does not stand the wear and tear as does asphalt or concrete." So, very flagrantly, the item contradicts itself.

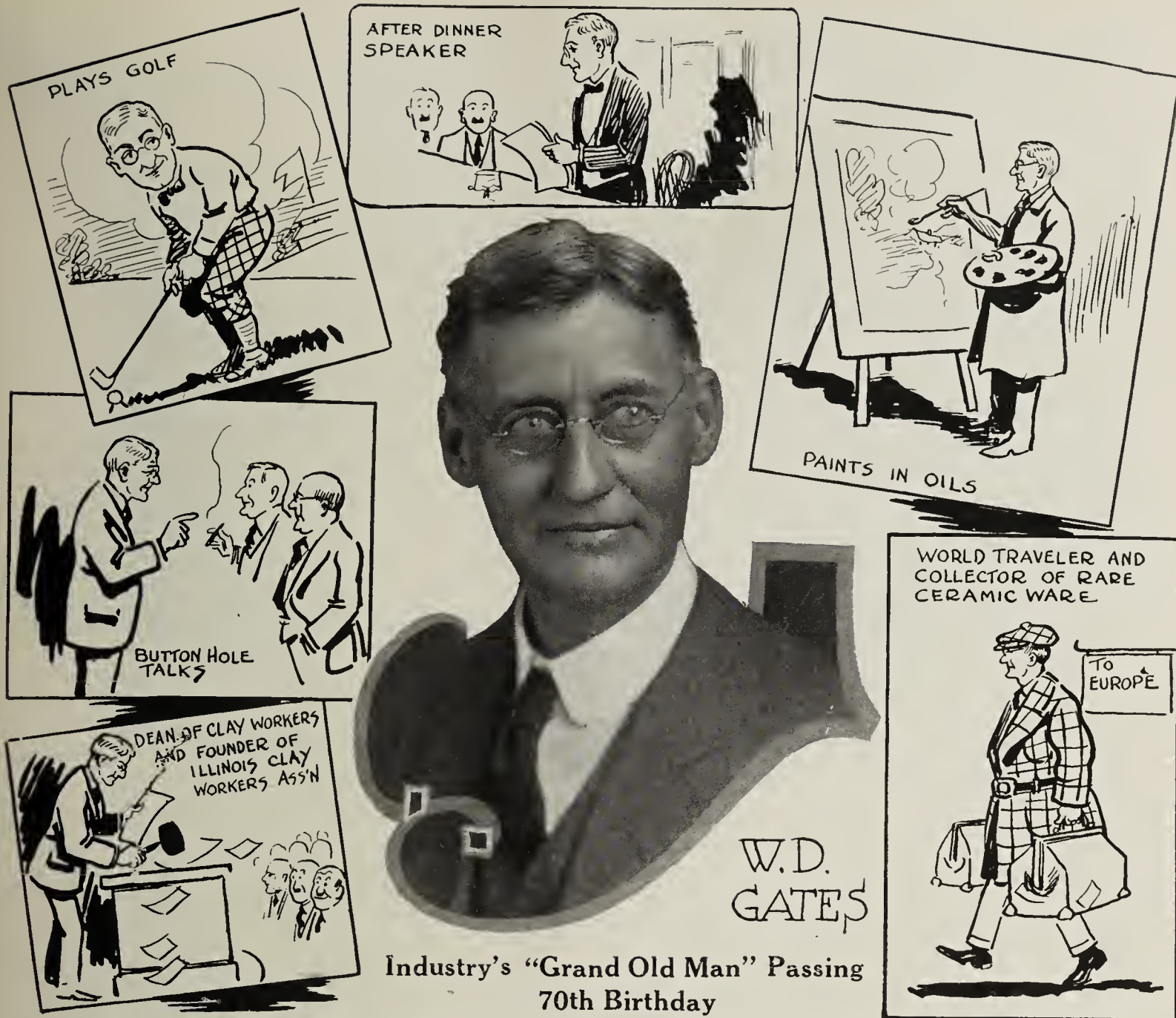
We do not know whether the correspondent who wrote this item was qualified to judge the merits of brick, concrete and asphalt, but we do know that the statements made in this item are entirely misleading regarding the qualifications of brick roads, and give brick an undeserved black eye.

Brick Seldom Fails

The strength of a brick pavement depends to a very large extent on the strength of its foundation. This is very obvious, since the surface of a brick road is made up of innumerable small units, which do not form any bond, and therefore can develop no transverse strength. Is it reasonable to suppose that a road surfaced with brick on a five inch concrete foundation is any weaker than a road built of five inches of concrete? We venture to say that the percentage of failures of the brick in a brick road is so small as to be almost negligible. The failure of the foundation, on the other hand, is another story, and of more common occurrence. The greatest asset which a brick road has is the toughness and wearing qualities of its surface. There are innumerable brick highways in use today, and giving perfect satisfaction, which have stood up under heavy traffic conditions for 30 and more years.

There are instances where brick laid on a rolled base instead of the monolithic slab are giving absolute satisfaction. There are brick roads which, after a third of a century's service, have been torn up, the brick turned, and a new surface thus given the pavement, which to all indications is good for 20 more years.

Paving brick, more than other clay products, has had to fight an uphill battle against competition, and items such as this one in the Daily News, which bears all the earmarks of competitive propaganda, are constantly recurring to make the fight of the paving brick manufacturer harder.



Industry's "Grand Old Man" Passing 70th Birthday

Besides Manufacturing Terra Cotta of Which the Industry Is Proud, He Has Other Accomplishments as Shown Here.

WILLIAM D. GATES, dean of clayworkers, one of the founders of the Illinois Clay Manufacturers' Association, president of the American Terra Cotta & Ceramic Co., at Chicago, and famous in the ceramic industry for a great many other activities, will celebrate his 70th birthday on July 29. At 70 Mr. Gates is still very active in the work to which he has devoted the greater part of his life.

Practically 40 years of his life has been devoted to ceramics, particularly to the art of making terra cotta. Introducing Mr. Gates is like explaining the operation of a pug mill to a clay manufacturer, unnecessary, still a brief chronicling of his time in the ceramic industry may not be amiss.

His first venture was in the manufacture of drain tile by a company known as the Spring Valley Tile Works, which he owned and operated. Then he made brick. About 39 years ago the American Terra Cotta & Ceramic Co., of which he is president, was organized and has been in continuous operation ever since. This company is well known as the producer of the famous "Teco" pottery and for the high grade of terra cotta manufactured. The high standards of quality which Mr. Gates has always insisted on are in a large measure responsible for the excellent quality of the terra cotta now produced in this part of the country.

Mr. Gates has gained most of his enviable reputation thru his affiliation with various clay manufacturers' or-

ganizations. He was one of the charter members of the American Ceramic Society, and in this connection his name ranks with such famous ones as Edward Orton, Jr., and Herbert A. Wheeler. In 1905-1906 he was president of the society. He has also held the presidency of the National Brick Manufacturers' Association. Probably most of his friends among the clayworkers know him best as an after-dinner speaker par excellence. His inimitable humor and his apparently inexhaustible fund of anecdotes and stories have caused him to be sought after to enliven the banquets and smokers of the clay men's organizations.

His accomplishments are many. He is a painter of considerable skill, and should you at any time visit his office you will see evidences of his art portrayed on canvas. He also plays golf, tho as he has confidentially informed us in his "buttonhole talks" in *Common Clay*, it is mostly in the rough, and he says thus far he hasn't been able to discover why they have fairways on the course.

We know what Mr. Gates will say when he reads this. In his whimsical manner he will exclaim, "It seems rather strange to read one's own obituary, but I suppose now I'll have to live up to it." We also know this, that we are expressing the wish of the entire ceramic fraternity when we say that we hope it will not be necessary for a great many years to write his obituary, but when the time comes he will have no reason to be alarmed over the nature of it.

One Man Excavator Proves Successful

Bay City Excavator Is Low in First Cost and Operating Expense—
Bridges Gap Between Hand Digging and Expensive Power Apparatus

PRACTICALLY every clay plant operator who did not already own a steam shovel, has dreamed and planned of the time when his plant would be large enough to justify the expense of the purchase and installation of one. The labor used in a pit on account of the pick and shovel work has been a nightmare to many an owner of a small plant. They have been anxious to do away with the hand labor, but there seemed to be a big gap between the efficiency of the pick and shovel gang on the one side and of the steam shovel on the other. The investment for a steam shovel has been large compared to the output of a small plant and especially when the operation of the plant was seasonal.

New Excavator on the Market

A type of excavator which is operated by one man, however, has been put on the market within the last few years, and has shown by the results of its operation that it supplies the missing link so to speak. It is proving a boon to the operators and owners of plants which have a capacity up to 50,000 brick or 150 tons or even more per day. In order to benefit any readers that can use this type of excavator *Brick and Clay Record* has compiled the following information from various parts of the country under different conditions of operation.

The machines are built on the same plan as a steam shovel, with a boom, dipper, etc., but wherever possible, weight and expense has been reduced without affecting the efficiency or capacity of the machine. These machines are not intended to replace or compete with shovels in the heavier class of work or when a large capacity is needed. They are especially suited to dig surface clay, and even hard clay, but cannot dig hard shale in the bank. The latter material can be shot down by explosives and if that is done, these machines will load it into cars very cheaply.

Will Use Motor for Power

A. W. Hill, of Coatsworth, Ont., Canada, has the following to say: "My bank is three feet deep and requires no stripping, and one man has been digging enough clay to make 12,000 four-inch tile per day with between three and four gallons of gasoline. He could dig twice as much in my bank, and if the bank was deeper could do it still easier. It would dig an eight-foot bank all right, and with a little change to the machine, it could be made to dig a deeper bank. The gasoline engine is easy to operate, but I am taking it off and putting on an eight H. P., D. C. electric motor.

"The only fault I had with the machine was the vibration of the engine. It will be better run with a four-cylinder engine or an electric motor. The motor will be the cheapest to operate as you can make the current in the plant with a very little extra cost and run the wires to the digger.

"Mr. Gilbert Armstrong, of Fletcher, Ont., is running his digger with a five H. P. motor and it is giving him plenty of clay for 12,000 four-inch tile. I temper my clay in the bank, but I think the machine would dig it no matter how dry it was."

Reports Some Low Costs

The Densmore Brick Co., of Lebanon, N. H., reports the following: "We have operated the machine since last August, and as far as the machine is concerned, we are entirely satisfied. We have had some difficulty in holding the machine up on soft clay, but, of course, this is no fault of the machine. It will operate on an eight to twelve-foot bank, will dig a hard clay, requires one man to operate and one man as a handy man about the machine. These two men with the shovel, one gallon of gasoline per hour, and



Excavator with Housing Removed, at Sims Brick & Tile Co., Fertile, Minn., Showing Small Amount of Machinery Required.



Installation at Ford Brick & Tile Co., Showing the Hard Shale Successfully Dug at This Plant. At the Top Center is a General Plant View. The Engine on This Shovel Operates an Air Compressor Which Is Used for Drilling Holes in the Shale Bank.

a small amount of oil, give us all the clay we need to make 45,000 brick per day. Previously it required eight to ten shovelers to keep our machine going. And now we have an even mixture of the top and bottom which we could not have with the hand shovelers.

"It will dig enough clay easily to make 50,000 brick a day, and if a suitable method is used to take cars away from the machine, we have no hesitancy in saying that it will dig close to 100,000 brick in nine hours. The gasoline engine is a good one, has plenty of power, and is as good as any gasoline engine that we have seen in this vicinity."

One Man Delivers Clay to Plant

"The excavator we purchased last summer from the Bay City Dredge Works has been very satisfactory and giving excellent service," says J. Whitney Soisson, sales agent, of the Joseph Soisson Fire Brick Co., Connellsville, Pa. "Our bank is 20 to 23 ft. high at the present time and as we will work back it will be higher. It will dig a fairly hard clay.

"At the present time we shoot our clay, but we are convinced that it would work a 10 or 12 ft. bank without shooting. Ours is operated by one man, who loads the car lets it run on a track to our clay chute, dumps the car and then by means of pulleys hauls the car back to the excavator point. On some days we have two other men on the bank cleaning up, but not regularly. It will dig 250 yards of clay in ten hours; the engine is easily handled and fuel consumption is five gallons in eight hours."

Digs Hardest Clay Ever Seen

The Barboursville Clay Manufacturing Co., of Barboursville, W. Va., reports as follows: "The excavator we have in operation made by the Bay City Dredge Works, gives us the very best satisfaction. It will operate on a level of about 12 ft. in height. Our clay is the hardest clay I have

ever seen, and we doubted if the machine would do the work, but it handles it alright. We use natural gas about 1,000 ft. per day, making 25,000 brick or 10,000 4x5x12 tile, which is our capacity for drying. We make the day with the excavator in about five or six hours."

A New York company reports they have their clay loaded by contract and the man who does the loading has one of these excavators. They state that at the time that they entered into the contract, they were using five more men than the contractor requires today since he purchased the excavator. They use on an average of seventy tons of clay per day, and have dispensed with almost all of the dynamite. One of the biggest advantages for them, they claim, is the fact that no matter what kind of weather is encountered they are never short of clay, whereas, previous to the purchase of this excavator, they were frequently short on rainy days.

Supplies Clay for Fifty Thousand

The Riverside Clay Works, at Knoxville, Tenn., says: "The Bay City Dredge digs from a bank of hard clay ten feet high, enough clay for 50,000 brick a day. One man can handle it and the fuel consumption is very small. It is very simple to work as we taught a man to handle it in two days' time. The only objection that I find to it, and that is nothing to worry about, is that it will not dig a wide enough cut to follow up with a car or cart. You have to load your first cut thru on top of the ground and you can only dig about four feet deep then. After you get the first cut thru you can cut down to ten feet."

"Our clay bank varies from six to 12 feet in depth, and we have worked it 14 feet without any trouble whatever," reports the Standard Brick Co., of Memphis, Tenn. Our clay is fairly hard. One man operates the machine, and keeps the trackage clean, and one man takes care of the empty and loaded cars. For our requirements the digger is

in operation only about half of the time, making 25,000 brick in about six hours, the cost of the clay delivered in labor being \$7 and for gasoline \$1.05.

"We are impressed with the simplicity of operation and believe the digger would be capable of furnishing clay, such as ours for 75,000 brick per day for ten hours."

Excavator Works Half Time

Leonard J. and Charles E. Scholl, of Clio, Mich., say: "We have been working in a nine-foot bank of hard, tough clay and have delivered to the brick machine sufficient clay for a daily run of 32,000 brick with the excavator in operation about fifty per cent. of the time, with a fuel consumption of about six gallons of gasoline, and with a crew, consisting of the operator and two cart drivers."

The Ford Brick & Tile Co. of Harrisburg, Ill., is one of the latest concerns to install a Bay City excavator. This plant manufactures from 30,000 to 35,000 brick per day, or its equivalent in drain tile or hollow building block. The clay varies from a soft shale on the top to a hard shale in the bottom of the pit. About 20 feet of the shale and ten feet of clay is worked in the pit.

This type of excavator heretofore has not been used very much on shale digging, but its success at this plant increases its possibilities and widens its field. Before the installation of the excavator, ten men were employed in the pit to do the various phases of work required. At the present time only four men are employed, making possible a reduction of six men.

Saves Labor of Four Men

Charles P. Ford, manager of the plant, stated that the machine saved him perhaps the expense of four men, when considering the cost of fuel, maintenance, and so forth.

The excavator requires about seven to eight gallons of gasoline per day, and is not operated continuously, because it is able to dig a sufficient quantity of clay in a shorter period of time. The oil consumption is low.

A very unique feature in connection with this plant is the installation of an air compressor placed right on the excavator, and which is operated by a belt connected to the gasoline engine. This belt otherwise operates the shovel. The air compressor is used to furnish air for the pneumatic driller, which serves to drill holes in the clay bank. Dynamite is used in some cases to loosen up the bank.

One of the advantages of this type of machine for a small plant is that if the capacity is small the excavator can be operated only part of the day and the investment is not large enough to increase the interest and depreciation charges to any great extent. Take the figures of the Densmore Brick Co., shown above. Estimate their labor expense at \$7 per day, the gasoline and oil at \$3 and the charge for interest, depreciation and repairs at \$10 per day. The total will be \$20, and for an output of 45,000 per day this will amount to 44.5 cents per thousand. This will be in the neighborhood of fifteen cents per ton or cubic yard.

Comparative Costs

The average cost of digging clay with pick and shovel is at least three times this amount and only the very large steam shovel outputs will enable that equipment to show lower costs. Even for a plant making 25,000 brick the labor and gasoline and oil costs will be in the same proportion. It is true that the interest and depreciation charges will increase this unit cost somewhat, but only a few cents at most. The interest and depreciation charge shown above is estimated on a basis of two hundred working days per year, and this is ample allowance for seasonal plants. If the ex-



One Man Digs Fire Clay, Loads the Car, Runs It by Gravity to the Plant. Dumps the Car and Hauls It Back to the Excavator, at Jos. Soisson Fire Brick Co., Connellsville, Pa.



This View Shows Acute Angle at Which the Bay City Excavator Can Be Operated.



Another View of the Excavator Showing the Cabin Comfortably Enclosed.

cavator works every day the charge will be reduced correspondingly. This low carrying charge is one of the items that makes this type of equipment especially suited to a small plant.

One of the points which an owner should consider when contemplating the purchase of one of these machines is the steady and uniform supply of clay at all times no matter what kind of weather is encountered. In many cases the production that is lost from this one cause will easily pay for an excavator in one year's time.

Removing Overburden

These machines could also be used very advantageously for stripping where the clay to be handled is not very hard nor the output large. One of the main points to watch in the operation of a steam shovel when used for stripping is to have as large an output as possible, and it is often difficult to supply cars fast enough. Moreover steam shovels must have a long run of continuous work ahead of them and this generally requires a deep cut. Very often one or more of these conditions are absent from a contemplated stripping job and it is in cases of this kind that one of these excavators will be found very satisfactory and economical. In fact, in cases where the excavator is used in a seasonal yard to dig the clay for the factory and some overburden must be removed, it will be found to be very good practice to remove the overburden while the plant is not operating. Where frost would interfere with the work a thatch or layer of straw upon the ground will prevent it from going deep enough to cause any inconvenience.



INDIANA SIXTH STATE IN CERAMICS

The boom in good roads and the building industry in Indiana has brought to the front one of the really important industries of the state, the brick and tile industry. Officials of the state department of conservation have finished compiling data concerning the state's resources in clays and kaolin. Officials of the department say it is not generally known that Indiana ranks sixth in the production of ceramics and all of the raw material is produced within the state. The area of contact extends from Benton County in the northwestern section of the state to Perry County in the southeastern on the Ohio River. The state produces a variety of ceramic wares from ornamental and fire brick to pottery products such as red earthenware, stoneware, yellowware, Rockingham ware, whiteware, semi-porcelain ware, elec-

trical ware as well as encaustic tiling, fire-proofing, sewer pipe and other clay products.

The state department calls Indiana kaolin "Indianaite." The principal development has been in Lawrence County and here the production has been confined to a small area. In road building material, the state is well supplied. The increased demand for brick and tile in road and street construction has given a new impetus to brick and tile plants in Indiana, most of which virtually are sold up for the entire year. The reduction in the price of brick and the lowering of freight rates has been one of the contributing causes to the activity in these industries, officials of brick companies say.



UNIFORM BRICK CLASSIFICATION

The recent decision in favor of the complaints filed by the National Paving Brick Manufacturers' Association, American Face Brick Association, and Hollow Building Tile Association, put into effect a uniform list, given below.

The Interstate Commerce Commission said that in the future it would be unreasonable for the carriers to fail to maintain this uniform brick list and that the commodities named should be subject to a carload minimum weight not exceeding 60,000 pounds, marked capacity of car to govern if less than the minimum.

Brick or Block: building or facing (solid, hollow or perforated) except enameled;

Brick, fire;

Brick or block: paving, shale or fire clay;

Brick: salt glazed, when shipped in same manner as building or facing brick;

Ground clay, ground shale or ground fire clay;

Blocks or tile: hollow building or condensing;

Blocks: silo, radial-chimney and segment;

Conduits: clay or shale, not lined;

Slabs: clay or shale, not enameled, not roofing or ornamental, loaded loose in cars when shipped in the same manner as building or facing brick;

Tile: hollow building or fireproofing.

In requiring the carriers to put the above list into effect, the Commission said that the list must not be considered as exclusive but that other clay products of similar transportation characteristics may be included.

The May 16 issue of Brick and Clay Record contained a digest of these new rates.

FINE CERAMIC MANUFACTURE



A Department Devoted to Practical Problems in the Manufacture of Higher Grade Ceramic Products such as Whiteware, Including Electrical Porcelain, Floor and Wall Tile, Sanitary Ware, etc., as Well as Stoneware Terra Cotta, Special Refractories and Other Articles Where High Grade Clays Are Employed in Their Fabrication.

"CONTINUOUS KILN WILL BE KILN OF FUTURE"

GAS FIRED continuous tunnel kilns are coming in for a considerable share of attention in England, judging by the prominence given this subject in a recent issue of Pottery and Glass Record. There are many considerations which are contributing to the desire of English manufacturers to find improved means by which more economical firing methods can be utilized, resulting in lower production costs without reduction in quality of ware.

They have resulted in much attention being devoted to the comparatively new gas fired kilns. So far the most considerable success in the use of these kilns has been attained by tile, sanitary ware and glazed brick manufacturers. They are bulk producers. At the same time, highly favorable reports filter thru as to the quality of the ware—earthenware, majolica, and even tiles and sanitary ware—from the few big firms that have installed gas fired tunnel kilns.

A representative distributor of the trade has expressed himself as follows: "If the new tunnel ovens will, by their extended use, fetch down prices of bulk lines of whiteware, decorated dinner and tea services, and not tamper with the durable quality found in the old bodies, then let us have more of them built. But what I have noticed, tho merely a buyer, is that while the quality from some plant, that has the new kilns working is maintained, I have not found it to be the case invariably."

Several Types of Tunnel Kilns in Use

A leading technologist in the English pottery industry, in commenting on gas fired tunnel kilns, has stated: "No one with any claim to knowledge and practical experiment with the new type of kilns would believe anybody who said that a certain type of continuous kiln was as good for biscuit as for glost. To carry thru a successful firing in the biscuit state, it requires a different type of firing than is requisite for glost."

"There are a number of new continuous gas fired kilns in operation. One, the Marlow, is a kiln in which the saggars are placed on trucks, and these trucks are passed thru a long tunnel, the flame in the kiln playing around the saggars. While it has been employed mainly for tiles, all kinds of glost ware, it is said, have passed thru successfully. Larger than any other continuous kiln in existence is the one installed at a large new works at Tunstall under the name of the Carder kiln. It is a kiln of the Fourgeron type, and has a very large truck with

100 saggars placed thereon passing thru a tunnel that is kept hot. It is the kiln with the largest output. It is successful, and is the only one of its kind in the potteries. In the Dressler kiln, the oldest of the new tunnel kiln type, there are combustion chambers on each side of the kiln which keep the tunnel warm, and the ware goes thru these chambers without saggars on the trucks.

How Can Small Plant Benefit?

"There is one type of new oven that the two consultants to the Ovens and Kiln Sub-Committee of the British Pottery Manufacturers' Federation are thinking of handing over; but its firing properties have only been considered for a short time by the two parties interested. I don't say it will meet all requirements, but I offer the opinion that it would be an improvement over the old type of oven in the case of intermittent firing operations. But, frankly, I don't see how it is possible to help the small maker, in spite of the economic savings that would result if, as has been suggested, smaller makers could bring their ware to be fired in a big gas-fired oven, and be charged with their proportion of cost. With the small maker his real loss in the firing of pottery is due to intermittent firing. With his kilns or ovens he has to heat them up and let them cool down daily; and, moreover, he has to heat up an enormous amount of brickwork, and he loses a large amount of that heat. The only way that the small maker can get out of his difficulty of wasting the heat is to keep the kiln hot, that is, by having a continuous kiln. And the loss is caused because you are making it hot and cool again. It has been said, of course, that only the bigger makers could afford to put down a continuous kiln; but surely that statement needs qualification. In the first place, it does not take a huge place wherein to be able to erect a continuous kiln. The difficulty of site is rather one of inconvenience of situation of workshops and proximity to the kiln. Then the output from a continuous kiln need not be extremely large to make it, other things being equal, a profitable investment. A firm that makes three kilns a week could profitably install one, as I remarked before, other things being equal. But whatever else is essential, there must be room to put it up. If the maker possessing a cramped factory had intentions of putting a continuous kiln down, there would be no physical possibility of so doing without getting more land, and reorganizing the whole site of the works."

Quality Is of Greatest Importance

The technologist whom we quoted above is of the opinion that English manufacturers who have established a trade, foreign and domestic, built on their reputation as producers of quality ware, will not find the saving in fuel cost accomplished by the use of the tunnel kiln any attraction in changing to this method of firing. The first consideration to a manufacturer of quality ware will be, "Will these kilns turn out just as good pottery for me as the old style?" Manufacturers in England are not definitely satisfied on this point. Despite this, the technologist referred to made the statement, "The continuous kiln will be the kiln of the future."

He further stated, "I believe that the outlay involved has been the mainspring of the delay in more firms taking up the

Editor's Note—This article was abstracted from an article appearing in the Pottery & Glass Record, an English trade paper. The statements contained herein are interesting in view of the English manufacturers' much longer acquaintance with tunnel kilns.

new types of kilns. I repeat, to large numbers of makers the holding out of hopes of rapid repayment of capital expended would influence them but little, unless it could be demonstrated to them that the quality would be improved, or at least be as good uniformly. For some classes of ware, as for example glazed tiles, I do not think there is any doubt whatsoever that the quality has been improved by the use of the continuous kiln.

"While I am convinced of the more general use of the gas fired continuous kiln and the direct fired chamber kiln, there will always be intermittent kilns in use. Firms like Wedgewood & Sons, Ltd., and famous china manufacturers like Minton's, Copeland's and others, will probably always keep on with the intermittent ovens because of their eminent and unqualified suitability for the making of a number of different bodies."

Oil Burning Has Objections

Speaking in regard to the use of oil for the firing of pottery products, the following opinion was given: "The objection to oil for pottery firing is not so much as to its efficacy, but rather that there is no guarantee that the price is not going to change at once. It must be remembered that in reality there is no competition in the selling of the raw material. Actually, a large kiln was fired with it during the coal dispute. Generally speaking, the ware that came thru was quite good; and I go so far as to say that it was quite successful with an adaptation to an ordinary oven. If the manufacturers could be satisfied that they could get oil at a reasonable price, I think there is no doubt whatever about the suitability of using it."

When questioned regarding items making up the cost of production of chinaware, this expert in pottery had the following to say: "I do not suppose the value of china clay in some kinds of pottery amounts to 0.4 per cent. of the maker's selling price. That is to say, in the case of a factory making china, the actual cost was 40 pounds in order to make 10,000 pounds of ware."

"In pottery there are 20 skilled trades, all of which are necessary for the production of wares. A man who can do one process or operation, cannot usually do the other. The man who makes a cup or saucer cannot make both. In small works, the so-called art potteries, where the work is done by one man, the resultant article is not technically as good as in a local works where each process is executed by a skilled man, who is a specialist. The many processes involved make labor costs high, as high, for example, as in coal-getting. Therefore, in the economy of production in the future, it will be only in the case of the minority of firms, where price is not the ruling consideration determining sales, that can profitably ignore the new types of kilns. For the general run of makers, wherever true economy of production can be employed, and certainly the main opportunity of saving is in the firing of the ware, the continuous kiln will have to be adopted in order to facilitate the reduction of costs of finished wares."



EXPANDING TROPICO POTTERIES PLANT

Enlargements, improvements, extensions and expansions in various sections and departments of the plant of Tropico Potteries, Inc., situated in Glendale, Cal., six miles from the center of Los Angeles, are now under way and will increase the capacity of the various departments from 25 to 100 per cent., placing the institution among the most efficient and modern clay working plants on the Pacific Coast.

This plant manufactures as its main lines architectural terra cotta, sewer pipe and faience tile. The quality of goods manufactured is reported to be first class in every respect and in comparatively short time the company has built up an enviable reputation among architects and contractors for rendering a service that is complete and dependable in every way.

Installation of a new and modern system of humidity drying, in the place of the dry heat rooms in the past, permits safer and better drying of the terra cotta shapes in 24 hours as against five to six days by the older process; and a new warm-air system for the preliminary drying of the terra cotta and molds in the pressroom is another economizer of time in this department.

A huge warehouse, formerly used as a storeroom, has been converted into an exceedingly fine fitting room where the architectural terra cotta is fitted and finished for the final place in the buildings for which it is designed. The new equipment above mentioned and improved methods generally have increased the capacity of this department of the plant at least 25 per cent. without the erection of additional kilns or buildings, but in the event of continued increase in the demand for architectural terra cotta, additional buildings and kilns are contemplated and plans have been prepared in readiness for such a contingency.

In the sewer pipe department, additional machinery is now being installed and sufficient additional kilns are either being erected or planned to practically double the former capacity of this department. This extension was found necessary to take care of the increasing demand for vitrified clay sewer pipe which naturally follows the rapid increase in sub-dividing, street making and building in the outlying portions of the city of Los Angeles as well as smaller cities in Southern California and Arizona.

Similarly an increase of 50 per cent. has been effected in the production of faience and quarry tile and the company has recently added an entirely new line of hand-made tiles, in which many novel effects are being secured and which is meeting with great favor among architects and home builders generally.

In addition to the above mentioned, other improvements have been made, among the more important may be mentioned the enlargement of the general office facilities made necessary by the increased business, complete electrification of the plant, resulting in considerable economy over the former steam power plant and the erection of extensive dormitories on the company's property for the housing of the Mexican labor which is most generally used. Opportunity for unlimited expansion still exists on the 36 acre property of the company at the plant site.

Nearly 200 employees get their living from the operation of Tropico Potteries, and absorb a payroll of over \$25,000 a month. The improvements and additions above mentioned have been installed without increase in the capital stock of the company, but from the earnings of the plant, which is being consistently and steadily brought to a state of efficiency, placing it among the most modern in the whole country.

The officers of the company are B. M. Wotkins, President; Fred B. Ortman, Vice-President and General Manager; E. M. Davids, Secretary, and E. A. Jones, Treasurer, and besides these on the directorate are A. Adamson and James A. Gibson, Jr.



ELECTRICAL PORCELAIN IN CALIFORNIA

Progress of the plans for immense hydroelectric development will actually force the construction at Alberhill, Cal., of plants for the manufacture of high-tension porcelain insulators, is the opinion of men interested in Alberhill development. It is a fact that several projects for the manufacture of high-tension insulators and other electric porcelains, are in process of development, all of which are being held under cover; but there is something in the nature of a scramble to see which will be the first to work out a practical conclusion and build a plant for this form of commodity, which requires a high grade of technical skill, as the insulators must be infallibly correct, and pass

thru tests that will prove them to be, like Caesar's wife, above suspicion.

Plans for the making of sanitary porcelains also are making progress, says James H. Hill, president of the Alberhill Clay Co., while the constant increase in the use of clay products in the higher grades of houses—both for interior and exterior—for utility and art, keeps interest high in the entire ceramic field.



ARCHITECTS DISCUSS TILE

The Wisconsin Chapter of the American Institute of Architects held a well-attended meeting in Milwaukee on July 12, at which 72 architects were present. Tile, its manufacture and uses, was the topic of the day, and the subject was excellently covered by D. Knickerbacker Boyd and F. S. Walker. Mr. Boyd, who was formerly president and secretary of the American Institute of Architects, spoke on "Some Utilization of Tile by the Architect." Mr. Walker, who is secretary of the Associated Tile Manufacturers, illustrated his talk on "Present Day Methods of Manufacturing Tile" with stereopticon views. He praised Milwaukee for its excellent tile work, and stated that the workmen are of the very highest type. Members of the Tile Setters' Union were guests of Messrs. Boyd and Walker at a banquet at the Hotel Pfister.

The Wisconsin Chapter will exhibit tile and tile work, together with photographs showing both exterior and interior application, at the Milwaukee Art Institute the first two weeks of November.



MADDOCK OPERATING FULL TIME

In discussing present plant production, the Thomas Maddock's Sons Co., Trenton, N. J., manufacturer of sanitary ware, says that "the kilns are going full blast and it is surprising to see how fast they are taking the ware. This continual flow of ware from the shop is making us scratch to keep the kilns supplied. We are fortunate to be able to operate on full time and would like to keep up the good work."



FOLTZ CHARTER MEMBER OF ROTARY

Andrew Foltz, president of the Lambertville (N. J.) Pottery Co. has become a charter member of the new Rotary Club forming in that city, and will also act as treasurer of the organization.



HANSEN RE-ELECTED TO TREASURER'S JOB

Abel Hansen, head of the Ford Porcelain Works, Perth Amboy, N. J., has been re-elected treasurer of the Perth Amboy Building and Loan Association.



MAY REVIVE RAPP POTTERY

An effort is being made by the citizens of Morton, Ill., to sell corporation stock to revive the Rapp Brothers pottery industry, which has been standing idle for several years. John Gerber, E. W. Rapp and William Rapp are associated in the enterprise.



POTTERY MEN EXPECT BUSY SUMMER

East Liverpool pottery manufacturers look for uninterrupted operation during the summer, generally a dull period in this industry, due to the fact that buyers for department stores and jobbing houses are already in the market for early fall deliveries. Contracts are being awarded more freely than during the first half of the year when the tendency was to hold back. Pottery shipments were especially heavy during the first week of July,

orders having been held until July 1 to take advantage of the reduced freight rates which became effective on that date.



"JULY LOAF" DOES NOT MATERIALIZE

The "July loaf" which is usually taken annually by all United States potteries lasted only four days at the plant of the Hope-well (Va.) China Corporation, since this company has so many orders on its books that a longer shutdown was unnecessary. It was the plan of the company to take inventory during the brief idleness, according to Sol Ostrow, president.



PLANNING NEW POTTERY PLANT

The Texas Chinaware & Novelty Pottery Co., Dallas, Tex., recently organized with a capital of \$50,000, is perfecting plans for the erection of a new plant at Betterson Circle, Oak Cliff district, for the manufacture of chinaware, china toys and glazed pottery specialties. The initial works will have three pottery kilns, and three bisque kilns, with equipment installation to provide for an output valued at \$300,000 per annum. The new company is headed by H. G. Stern, J. D. Robinson and P. A. Angelsburg. The Industries Department of the Dallas Chamber of Commerce is interested in the enterprise.



FORM \$120,000 CHINA COMPANY

William G. Muller, Inc., New York City, has been organized under state laws with capital of \$120,000, to manufacture chinaware products. The incorporators are W. G. Muller, K. Lickhard and F. Heinrich, all of New York. The company is represented by W. G. Bushell, 67 Wall Street, New York.



N. J. PORCELAIN TO BUILD NEW PLANT

The New Jersey Porcelain Co., Trenton, N. J., has filed plans for the erection of a new plant on Pennsylvania Avenue.



TRENTON COMPANY TO BUILD ADDITION

The Resolute Pottery Co., Third Street, Trenton, N. J., manufacturer of sanitary earthenware, will commence the immediate erection of an addition to its plant to cost about \$10,000. Plans have been completed.



\$300,000 CHINA COMPANY IN TEXAS

\$300,000 annual output of pottery ware, it is estimated, will be produced by the Texas Chinaware & Novelty Pottery Co., of Oak Cliff, Tex. This is a new company, organized recently, it is said, by J. D. Robinson and P. A. Angelsburg. A plant is to be erected in what is known as Betterson Circle for the manufacture of china toys, dishes, and highly colored pottery.



FIRE DOES CONSIDERABLE DAMAGE

The plant of the Edwin Bennett Pottery Co., Eden and Fleet Streets, Baltimore, Md., was damaged slightly by fire, June 23. A number of plants of different character in the same locality were partially destroyed at the same time, with total loss approximating \$200,000.



FIND PORCELAIN CLAY DEPOSIT

The Calistoga (Cal.) Calistogan reports the discovery of a field of porcelain clay about three miles from that place. It is understood the Napa Valley Mining Co. will proceed to work the field.

The Superintendent

Helpful Hints for Practical Men Whose Problem is Maximum Production with Minimum Cost

TWENTY POINTS IN CARING FOR BEARINGS

1. Before starting a new machine, examine each bearing and see that it is properly oiled.
2. To adjust a new bearing set up the box tight and slack back on the bolts one-sixth of a turn with the machinery running, tighten bolts gradually until the knock or pounds are all taken out.
3. After a machine has been idle for a considerable length of time it is probable that the oil is entirely squeezed out from between the bearing surfaces.
4. Never permit pounding. It will make a box run hot. It also peens or enlarges the brass or babbitt, thus destroying the fit. A bearing set up loose is nearly as bad as one too tight.
5. When injecting oil in open oil holes, be sure to see that the hole is open and not filled with dirt or chaff.
6. In cold weather to get the benefit from a lubricant heat the oil in the oil can. On the exhaust manifold is a good place to keep the can.
7. Bearings in out of the way places are many times more in need of proper oiling than those more accessible. Don't neglect these bearings.
8. Use the lightest oil that can be used with safety on machinery bearings. It gives better service.
9. Where pressure is light, high speed spindles of hardened steel can be successfully lubricated with kerosene.

10. To properly distribute oil in bearing, oil grooves must be cut in the cap. These grooves should be cut at right angles to the direction of the motion of the journal. Never cut these grooves thru the end of the box, as oil leakage will occur.

11. Bearing housings having oil wells should be cleaned out occasionally. Be sure that they are always refilled before starting the machinery. The felt wipers should be taken out at intervals and soaked in kerosene to soften them and remove the glaze.

12. If a bearing heats up quickly, it is a danger sign. If a temperature that is uncomfortable to the hand is reached in two or three hours, the bearing is probably safe. However, if this temperature is reached in ten or fifteen minutes there is something wrong with the bearings.

13. The first thing to do with an overheated bearing is to loosen bearing bolts and apply a heavy dose of cylinder oil.

14. Don't forget that graphite and oil is good for a hot bearing.

15. Sulphur or ground talc mixed with oil and applied the same as graphite and oil will do a lot to diminish the increasing high temperature.

16. Grape or olive oil is also on overheated bearings.

17. To clean an overheated bearing of foreign particles that may be present, flood the bearing with kerosene or gasoline.

SAGE PRESS	HOT WATER			10 LBS.			80 LBS.			120 LBS.			160 LBS.			200 LBS.			200 LBS. AND 100° F. SUPERHEAT.			275 LBS. AND 250° F. SUPERHEAT.		
TEMP.	180° F.			239.4° F.			324.0° F.			350.0° F.			370.7° F.			387.9° F.			487.9° F.			664.3° F.		
PIPE SIZE	DOLLARS LOSS	POUNDS COAL	BTU PER LINEAL FT. PER ° F. DIFF. PER HR.	DOLLARS LOSS	POUNDS COAL	BTU PER LINEAL FT. PER ° F. DIFF. PER HR.	DOLLARS LOSS	POUNDS COAL	BTU PER LINEAL FT. PER ° F. DIFF. PER HR.	DOLLARS LOSS	POUNDS COAL	BTU PER LINEAL FT. PER ° F. DIFF. PER HR.	DOLLARS LOSS	POUNDS COAL	BTU PER LINEAL FT. PER ° F. DIFF. PER HR.	DOLLARS LOSS	POUNDS COAL	BTU PER LINEAL FT. PER ° F. DIFF. PER HR.	DOLLARS LOSS	POUNDS COAL	BTU PER LINEAL FT. PER ° F. DIFF. PER HR.	DOLLARS LOSS	POUNDS COAL	BTU PER LINEAL FT. PER ° F. DIFF. PER HR.
1/2"	1.32	526	.605	2.24	897	.670	3.92	1566	.779	4.51	1805	.815	5.25	2010	.846	5.53	2210	.875	8.60	3440	10.40	16.15	6460	13.75
1"	1.91	763	.878	3.26	1305	.973	5.72	2290	1.138	6.25	2601	1.178	7.27	2910	1.242	8.07	3230	1.280	12.56	5026	15.20	30.55	12220	26.00
1 1/2"	2.65	1060	1.220	4.54	1818	1.357	7.98	3190	1.586	9.28	3710	1.676	10.42	4165	1.751	11.36	4550	1.804	17.94	7175	21.70	34.30	13720	29.20
2"	3.24	1297	1.491	5.36	2142	1.600	9.78	3910	1.943	11.37	4549	2.052	12.75	5100	2.145	14.00	5600	2.220	22.10	8825	26.70	42.20	16890	35.90
2 1/2"	3.86	1545	1.778	6.65	2660	1.984	11.66	4660	2.320	13.66	5460	2.464	15.25	6100	2.564	16.70	6690	2.650	26.64	10650	32.20	50.50	20200	43.00
3"	4.56	1824	2.100	8.24	3292	2.460	13.88	5550	2.760	16.14	6450	2.910	18.04	7210	3.030	19.84	7945	3.150	31.60	12640	38.20	58.25	24300	51.70
3 1/2"	5.18	2070	2.380	8.89	3554	2.655	15.82	6325	3.145	18.31	7322	3.305	20.50	8200	3.450	22.60	9040	3.580	35.90	14360	43.45	69.00	27600	58.60
4"	5.78	2305	2.650	9.87	3950	2.950	17.70	7075	3.520	25.50	8200	3.700	22.85	9145	3.842	25.15	10060	3.981	40.10	16040	48.50	72.40	30920	65.80
4 1/2"	6.35	2540	2.920	10.94	4370	3.260	19.48	7790	3.878	22.60	9025	4.075	25.30	10120	4.250	27.75	11100	4.400	44.05	17620	53.26	85.60	34240	72.86
5"	6.95	2780	3.200	11.97	4790	3.575	21.25	8500	4.232	24.62	9850	4.450	27.60	11050	4.650	30.40	12140	4.805	49.35	19740	59.60	94.50	37800	80.50
6"	8.20	3280	3.775	14.21	5680	4.240	25.30	10110	5.024	29.30	11720	5.295	32.80	13120	5.522	36.00	14420	5.715	57.50	23000	69.55	112.50	45000	95.80
7"	9.40	3760	4.325	16.18	6470	4.826	29.10	11640	5.782	33.70	13480	6.090	37.60	15040	6.324	41.60	16650	6.560	66.25	26500	80.10	129.00	51550	109.7
8"	11.00	4398	5.050	18.25	7300	5.450	32.60	13030	6.455	37.65	15050	6.840	42.40	16940	7.125	46.05	18420	7.300	74.75	29900	90.50	146.20	58500	124.4
9"	11.62	4650	5.350	20.35	8130	6.070	36.25	14500	7.210	42.10	16840	7.600	47.22	18900	7.950	51.98	20790	8.230	83.50	33400	101.10	162.60	65050	138.4
10"	12.68	5065	5.925	22.05	8820	6.584	40.20	16100	8.010	46.70	18690	8.440	52.30	20910	8.805	57.75	23100	9.150	97.50	39000	111.18	180.00	72000	153.0
12"	15.00	6000	6.995	26.44	10580	7.890	47.40	18950	9.425	55.40	22120	10.00	61.76	24700	10.40	70.00	28010	11.14	109.30	43700	132.2	213.50	85500	181.8
14"	16.60	6635	7.625	28.90	11560	8.620	52.00	20800	10.34	60.50	24200	10.92	67.50	27000	11.36	74.10	29650	11.76	119.40	47740	144.3	233.00	93300	198.5
16"	18.82	7525	8.650	32.80	13120	9.790	58.76	23500	11.70	68.40	27320	12.34	76.10	30410	12.80	84.25	33700	13.35	135.00	54000	163.4	265.00	106000	225.5
18"	21.00	8400	9.650	36.10	14460	10.80	65.40	26150	13.00	76.50	30570	13.80	85.50	34200	14.38	93.75	37500	14.87	151.20	60500	183.0	297.50	119000	253.0

Monthly Losses from 100 Lineal Feet of Horizontal Bare Iron Steam Pipe as Determined by the Mellon Institute. This is Figured for Steam in the Pipe for 24 Hours Per Day, and 30 Days in the Month. Coal Is Figured at \$4 Per Ton of 2,000 Pounds, with 13,000 B.t.u. Per Pound. Labor, Boiler Room Expense and So Forth, Is Figured at \$1 Per Ton, Making Total Cost of Coal \$5. Boiler Efficiency Is Taken at 70 Per Cent. and Temperature of Air 70 Degrees.

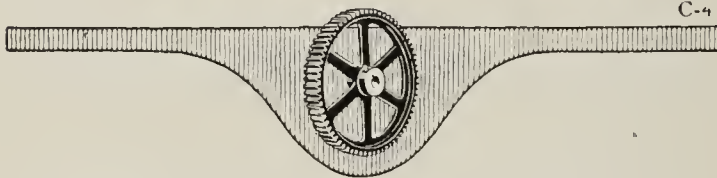
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SMOOTH running; correct in design, accurate and true to pitch, Caldwell gears are bound to please you. We make all types—machine-molded, cut tooth, mortise gears, worm gears, etc. Caldwell Promptness is Traditional. It is at your service. Our stocks assure prompt shipment.

Let us figure with you next time you are in the market.

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CALDWELL



Increase the value of your product by improving
the color with

LAVINO BRAZILIAN MANGANESE

"Best for Face Brick"

Economical
Adaptable to any Clay
Intense Staining Powers
Various Effects Obtainable
Uniform Analytically and Physically

Liberal samples and full information
gladly furnished upon request.

E. J. LAVINO and COMPANY

Bullitt Building Philadelphia, Pa.

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18. Don't forget that it will save time in the long run to inspect bearings at stated intervals.

19. To clean bearing surfaces which are covered with gummy oxidized lubricant, the parts should be well moistened with paraffin oil.

20. Bearings will not give service unless properly lubricated. Lubricants are derived from mineral, vegetable, and animal sources. Be sure and select the best oil for your particular needs. Consult the manufacturer of the oil for the best oil for your job.—By G. H. Radebaugh, Dept. of Mechanical Engineering, University of Illinois.

In the Wake of the News

Being Brief Mention of a Host
of Interesting Happenings in the
Varied Fields of Clayworking

KARL B. GRAHN PASSES AWAY

One of the wealthiest men of the southern clay working industry passed away July 9, in the death of Karl B. Grahn, president of the Louisville (Ky.) Fire Brick Works. Mr. Grahn died after an illness of about a month, at his summer home on Kenwood Hill, just south of the city. Mr. Grahn at the time of his death was 77 years of age. A native of Hanover, Germany, he came to America at the age of 20 years. He first settled in Pennsylvania, being employed by a coal mining company for two years. Some years later he was with the Eastern Kentucky Improvement Co., headquarters, Greenup, near Ashland.

Mr. Grahn was very active in building up that section of the state and purchased the Ashland Independent, which he developed into quite a newspaper in six years' effort. This he sold. He then devoted most of his time to development of lumber properties, coming to Louisville in 1889 and founding the Louisville Fire Brick Works. Later he opened clay mines at Grahn, Carter County, Ky., and shipped fire clay to the Louisville brick works, and still later installed a brick plant at the clay mines in Carter County.

During his many years in the brick and clay industry he amassed a fortune said to be in the neighborhood of a million dollars. For the past several years Mr. Grahn stayed out of the limelight, taking no active interest in general affairs or politics, but was quite active in church work.

Mr. Grahn took a good deal of interest in his employes at the mines, and erected churches and schools for their benefit. He never had any labor troubles at any of his operations. Hardening of the arteries was given as the cause of Mr. Grahn's death, it being complicated by old age and other ailments.

CROUCH GOES TO HOOD'S ATLANTA OFFICE

D. Frank Crouch, who has been connected with the sales department of the Memphis, Tenn., office of the B. Mifflin Hood Brick Co., has been transferred to the company's main office at Atlanta, Ga. B. B. Adams will succeed him in Memphis.

DEATH TAKES J. W. HOLMES

John Walker Holmes, aged 73, died July 15 at his home at New Britain, Conn. Since 1896, when he acquired the Dennis Brick Works at Christian Lane, Berlin, he has been prominently identified with the brick industry. Mr. Holmes promoted the organization of the New England Brick Exchange and was founder of the Federal Brick Co. He was director and part

owner of the Central New England Brick Co. His son, Frank H. Holmes, will continue the brick manufacturing business, having been in full charge of the plant for several years.

C. C. LEWIS GOES WITH FRANKLIN

C. C. Lewis of Toledo, Ohio, formerly connected with the drain tile business has taken a position with the Franklin Brick & Tile Co. of Columbus, as a traveling salesman. Mr. Lewis is a son of W. W. Lewis of North Baltimore, Ohio, president of the Ohio Drain Tile Association.

D. T. FARNHAM NOW CONSULTING ENGINEER

Dwight T. Farnham, who needs no introduction to members of the clay industry, and Irving A. Berndt, formerly vice-presidents of C. E. Knoepfel & Co., have struck out for themselves, and are now acting in the capacity of consulting industrial engineers. Their offices are located at 347 Madison Avenue, New York City. They will specialize in plant management and investigations.

H. S. RENKERT ILL IN SWITZERLAND

Harry S. Renkert, president of the Metropolitan Paving Brick Co., Canton, Ohio, is recovering from a severe illness which he contracted while traveling in Europe. Mr. Renkert is now under the care of a prominent physician at Geneva, Switzerland. Following his recovery he plans to sojourn for a time at some Alpine resort.

His brother, O. W. Renkert, is also in Geneva, and with Mrs. H. S. Renkert and her two sons is keeping his brother company.

E. A. HULTS MANAGES ALKALI WORKS

Many clay men will remember Eugene A. Hults, formerly of the North Iowa Brick & Tile Co. at Mason City, Ia., who has become manager of the Mathieson Alkali Works at Saltville, Va. Mr. Hults is a product of Perth Amboy, N. J. and after holding several positions took charge of the North Iowa Brick & Tile Co. in 1914. Mr. Hults was also connected with the Ceramic Equipment Co. for some time, which firm is now known as Proctor & Schwartz.

JOE GORMAN FOR STATE SENATOR

Joseph F. Gorman, genial representative for the Armstrong Sewer Pipe Co., in the Cleveland (O.) district, has thrown his hat in the ring, and declared himself this week a candidate for state senator in Ohio on the Democratic ticket. A goodly bundle of votes is expected to be annexed on August 8, when the primaries are held, friends of energetic Joe assert.

Meanwhile Mr. Gorman is not letting public service interfere with service to the building supply dealers, and during the interval is extending himself to get pipe expedited from manufacturer to dealer in the Northern Ohio territory.

BOWEN IS FIELD REPRESENTATIVE FOR C. B. M. A.

Additional value of the association to its members is seen by leaders in the Common Brick Manufacturers Association of America in the appointment of Charles A. Bowen as special field representative, with headquarters at Cleveland, Ohio.

Mr. Bowen formerly was secretary of the Detroit Builders Exchange and secretary of the National Retail Lumber Dealers Association. In his new position, as assistant to the president, Mr. Bowen is touring the country, calling upon the members, ascertaining their needs and problems, and offering suggestions leading to their solution.

The work of Mr. Bowen is adding new members to the organization already, according to Ralph P. Stoddard, sec-



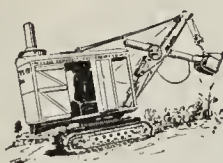
"Digs our shale in half the time—"

writes Emmett Poston, Mgr. Poston Brick Co.,

"With 5 men, the ERIE gives us plenty of shale to keep our plant running full capacity, and does a day's work of 11 men in 5 hours. And it has reduced our dynamite costs 90%. The ERIE has certainly proven a sound investment for tough shale digging."

Savings like these will increase your profits—and the ERIE'S steady reliability will assure you raw material whenever needed. The ERIE is built much stronger than other shovels of its size. Upkeep expense is negligible.

We would like to send you a bulletin full of facts and photos, showing just what the ERIE can do in getting out your clay and shale. Write for Bulletin B-16.



ERIE Shovels can be had with broad tired traction wheels, standard gauge car wheels, or on the ERIE caterpillar type mounting. All interchangeable on the same truck frame.

ERIE STEAM SHOVEL CO.

Formerly Ball Engine Co., Erie, Pa., U. S. A.
Builders of ERIE Steam Shovels
and Locomotive Cranes

ERIE Revolving Shovels



Big Savings Follow in the Route of the Rust Special

Features of economy and big savings follow in the path of the Marion Rust Special Feeder Mixer. Clay products manufacturers realize increased efficiency in profit wherever this machine is installed.

Write for complete data

MARION MACHINE FDY. & SUPPLY CO.

P. O. Box 395
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ATLANTA, GA. BALTIMORE, MD. BOSTON DETROIT
PITTSBURGH, PA. PHILADELPHIA MONTREAL MINNEAPOLIS NEW YORK CITY





MORSE Silent Chain Drives are 98.6% efficient for small or large drives. No worry about belt trouble, slippage of power and loss of production where Morse Chain Drives are installed.

Write us if you have a transmission problem. We give engineering service without any obligation.

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MORSE CHAIN CO.

Largest Manufacturers of Silent Chains in the World

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CHARLOTTE, N. C. CHICAGO CLEVELAND KANSAS CITY, MO.

SAN FRANCISCO
ST. LOUIS, MO.
TORONTO
WINNIPEG, MAN.

retary-manager, and still more new members are expected to be added thru this medium. Mr. Bowen is holding meetings of manufacturers at central points, two recent successful gatherings being held at Statesville, N. C., and Huntington, W. Va.

BIRMINGHAM PLANTS ARE BUSY

All of the face brick plants of the Birmingham, Ala., district are now running full time and new business is being received every few days from various sections of the South, as well as from Birmingham.

INCORPORATE \$1,500,000 COMPANY

The Clay Products & Mining Corporation, with a capital of \$1,500,000, has been incorporated at Fort Payne, Ala., by W. B. Cubberly and M. J. Smith, of Trenton, N. J. Samuel C. Kulp, of Trenton, also is interested in the company. The company, it is said, plans to acquire the property of the Southern Refractories & Kaolin Co. and remodel and enlarge the plant.

ALABAMA MEN FORM COMPANY

Riley C. Taylor, head of the Taylor Coal Co., of Phil Campbell, Ala., is organizing a company composed of business men of that city to establish there this year a plant for the manufacture of face brick, tile and other clay products. The paid-in capital of the new company will be \$12,000, which will provide for the establishment of a plant with an initial capacity of about 25,000 brick per day.

ARIZONA'S MODERN CLAY PLANT

Down in southern Arizona may still be seen the remains of the dwellings of the native Zuñi and Pueblo Indians, made from adobe formed out of the clay dug from the beds at the base of the Tucson mountains long before white men saw the valley of the Santa Cruz River. On this same clay of unknown depth and in inexhaustible quantity, is now the largest brick plant between El Paso and Los Angeles, the property of the Tucson (Ariz.) Pressed Brick Co. This company has a smooth gray and white clay which is capable of being made into high grade brick and tile, and the company is prepared to make anything the market calls for. One of the special products is the Heath Unit Tile for which the exclusive right in the state of Arizona has been obtained. Up-to-date machinery has lately been installed and the concern is prepared to go after the trade in competition with all comers. The manager, Mr. Gardner, has had much experience with large brick concerns in Los Angeles, and points out as favorable freight rates have been secured, the company is now in position to supply all southern Arizona.

NEW COMPANY AT LOS ANGELES

According to reports recently received, Los Angeles, Cal., is to have a new clay plant. The Western Clay Products Corporation has been incorporated with a capital stock of \$200,000, 2,000 shares at \$100 each.

FRISCO BUILDERS RUN AFOUL OF ANTI-TRUST LAWS

According to reports received, the anti-trust movement has now spread as far west as San Francisco. In this city some 77 building contractors, individuals and associations were served with warrants, sworn to by a plumbing contractor who charged that the defendants conspired to keep him from obtaining necessary materials because of his employment of union workers.

SHIPPING CLAY TO FRESNO, CAL.

Shipping of clay to Fresno, Cal., for commercial purposes is a new industry. George A. Clark of Worth, Cal., is making

Salem Elevator Buckets



We are manufacturers of the original SALEM ELEVATOR BUCKET which is used for handling all classes of materials in many different industries.

This type of bucket is of one piece construction, with rounded contour throughout, smooth in form, durable in service and clean in handling and delivery of materials.

There are no seams in front nor on the ends, the laps being made on the back and bottom at the ends. On the back the laps are riveted or spot welded; on the bottom the end pieces are bent under and hammered tight.

The widest range of service is covered by a very full line of regular types and sizes and made in various gauges of steel, from the lightest practical for ordinary work to the heaviest necessary for the most severe duty.

Write for new price list.

THE WEBSTER MFG. COMPANY

4500-4560 CORTLAND ST., CHICAGO

Sales Offices in Principal Cities

weekly shipments of three carloads from his ranch, six miles east of Porterville, to Craycroft & McKnight, of Fresno, to be used in the manufacture of brick and tile.

This raw material contains a high percentage of the type of shale required for manufacturing first-class brick and tile and it is expected that the industry will become permanent. The deposit is located along the right of way of the Porterville and Northern Railroad running to Springville. Arrangements have been made whereby the clay can be loaded into the cars by scrapers and teams. At the other end of the line unloading is done by dumping, so transportation is a minor problem.

SHIPS IMMENSE QUANTITIES OF CLAY

Indicative of some of the by-products of Los Angeles' tremendous building activities, inquiry at the new offices of the Alberhill Clay Co. discloses the fact that shipments of clay from the pits at Alberhill to the brick and tile industries of Los Angeles are the largest in the history of the company, and nearly four times as great as in any previous year.

The plans for a "clay city" at Alberhill, California, are by no means dormant, tho held back—more by eastern financial pessimism, than by local situation.

James H. Hill, president of the company, while giving the above news, is very optimistic for the future; and he states that right at the present time negotiations are progressing with no less than five industrial concerns—two local and three eastern—for the location of clayworking industries either in Los Angeles or at the Alberhill clay mountains, all of which would, if the negotiations are successfully concluded, bring new factories for the manufacture from clays, of commodities not made in this territory.

In connection with the Alberhill project new outfall sewers to be built will require a volume of brick or tile or both, that would tax present local manufacturing facilities for a period of three years, says Mr. Hill. This will mean either the coming in of new concerns, or the expansion of present plants to take care of the demand created.

GETS ORDER FOR 1,300,000 FACE BRICK

The largest order of face brick ever given on the Pacific Coast was recently awarded by the Biltmore Hotel Co. to the Los Angeles (Cal.) Pressed Brick Co. The order was for 1,300,000 brick. This does not cover the whole of the hotel building but is the first order for brick.

This order along with others will keep the brick kilns at the company's Los Angeles plant working up to capacity for a long period.

The brick being manufactured is from the company's big clay deposits at Orro Grande, San Bernardino County. One hundred carloads of this clay, which has been declared by ceramic engineers to be of an especially high grade, are now being mined for immediate delivery.

The brick will be of a special ruffled type, in a deep reddish brown color, and will add a high ornamental value to the structure.

The company is now arranging its clay storage capacity in the local plant for the largest supply of the raw material of this kind that has ever been assembled by the clay products industry in Los Angeles. The new storage bins, which have recently been installed, increased the company's storage capacity to about 18,000 tons, and enable it to have a larger supply on hand to be put thru the process of "aging." According to Superintendent Cake of the Los Angeles Pressed Brick Co.'s local plant, the rush of orders to supply big building jobs in Los Angeles will keep the plant working up to capacity thruout this year.

GREAT BUILDING YEAR FOR GEORGIA

Improvement noted by the brick manufacturing industry thruout Georgia and other southeastern states the past



Performance has two dimensions— Quality and Quantity

We could tell you of the endless research in both field and laboratory that has developed such improvements as Automatic Temperature Control. We could point with pride to equipment that winds moving elements with wire as fine as a hair—or to the 101 other differences in Brown methods that are responsible for Brown accuracy and stamina.

But it's what Brown instruments do in the field, in everyday, hard service that counts.

In the field Browns are supreme. There are nearly as many Brown Pyrometers in use in America as all other makes combined—because they make good, and keep right on making good, without coaxing.

THE BROWN INSTRUMENT COMPANY

4503 Wayne Ave., Philadelphia, Pa.

New York
St. Louis

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Brown Pyrometers

Most used in the world

30 to 50 Tons Every Hour!

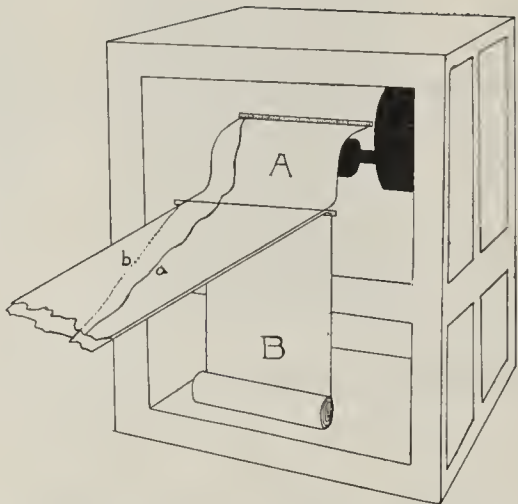
The Sunbury Automatic Car Unloader will unload your coal at the rate of 30 to 50 tons per hour, and will reduce your labor to one man.

Can you afford to be without this machine?

Ask for more detailed information
TODAY!

The Sunbury Manufacturing Co.
Sunbury, Ohio





Standardize Your Burns

Determine what is the proper speed at which kilns should be burned. Plot this as a time temperature on a roll of paper mounted like "B" in the illustration above. Mount this so that it can be moved backward and forward.

Then the record of every kiln as shown on "A" can be placed over the standard time temperature curve and a glance will tell whether or not, the kiln is being burned too slow or too fast.

The result will be that the fireman without any knowledge of the mechanism of pyrometers will be able to burn a kiln with a minimum of fuel and a maximum of quality ware.

Ask for details

Wilson-Maeulen Co.
738 E. 143rd St. New York

ADEL EXCAVATOR

- the continuous shale planer.

CONSIDER — a machine that operates continuously delivering a steady flow of finely divided, thoroly mixed material from the bank. Simple and inexpensive to operate. No blasting is required.

Write for details

STEPHENS-ADAMSON MFG. CO., Aurora, Ill.

S-A MFG. CO. 5637

month is extremely gratifying, according to manufacturers in Atlanta, who says that the unusual building activity all over the section is proving of material aid to the industry. Many brick structures, principally schools, business buildings and apartment houses, are being constructed, and there is promise of continued building activity the entire year. The Federal Reserve Bank of Atlanta advises that the first six months of this year proved one of the greatest building eras in the history of the section, nearly all of the larger cities exceeding the first six months of 1921 by a big margin. Orders on hand at most of the larger brick plants over Georgia are reported to be well in excess of stocks in the yards or storage, with business picking up at a steady pace.

ANOTHER SHOPE BRICK CO.

The Shope Brick Co. has been incorporated at South Bend, Ind., for the purpose of manufacturing concrete brick and other building materials. The company lists a capital stock of \$25,000 and the directors are George J. Hoffman, Clem C. Whiteman, Dick Johnson, C H. Jackson and C. A. Perkins.

GETS FOUR MILE BRICK ROAD JOB

The Northern Construction Co., of Elkhart, Ind., has secured the contract for paving nearly four miles of brick road in White County. The company was the only bidder. The price was \$3.15 a square yard on that part of the road that is in Monticello, Ind., and \$3.08 a yard outside the city. The entire cost will be \$115,737.

WANT RATES REDUCED ON BRICK

Reduction of the freight rate on brick on the Monon and Big Four Railroads is requested by the trustees of the Indiana reformatory in a recent petition filed with the public service commission. The petition sets out that the freight rate on brick, intrastate, to the new reformatory at Pendleton, is \$1.76 a ton, whereas the interstate rate for the same distance is but \$1.20 a ton.

FIRE DOES \$10,000 DAMAGE

Fire of undetermined origin, starting in a shipping department, caused damage which will amount to more than \$10,000 in the factory of the National Tile Co. at Anderson, Ind., recently. Because of the nature of the fire it was necessary to flood nearly the entire plant with water before it could be extinguished. The factory originally was owned by the Columbia Encaustic Tile Co., of Indianapolis. The Lily and Haugh families of Indianapolis and Anderson still are interested in the plant. The plant will be rebuilt immediately.

TO OPEN TERRE HAUTE PLANT

Plans are being made to reopen the plant of the Terre Haute (Ind.) Vitified Brick Co., which has been closed during the past two years, following financial difficulties. The plant, which is near St. Marys on the west side of the river, has been prepared for operation and will be opened as soon as the coal strike is settled and fuel can be obtained. Charles Minshall has bought the property and has leased it to Joseph Entwistle, who intends operating a modern brick plant. One of the changes brought about by reorganization, will be in the product manufactured, as the new managers intend to manufacture face brick instead of paving brick. Production will be moderate at first, averaging about 40,000 daily, but the output will be increased gradually.

CHICAGO BRICK CO. INCREASES CAPITAL

The Chicago Brick Co., 38 South Dearborn Street, Chicago, Ill., has filed notice of increase in capital to \$250,000.

PEORIA PLANT IS BUSY

Business at the plant of the Rapp Clay Products Co., Peoria, Ill., is good. This plant is now operating to capacity. The company has recently installed a new and larger tile machine to replace its old one.

RENEWS CHARTER FOR 20 YEARS

The Georgia-Carolina Brick Co., of Augusta, Ga., according to Howard H. Stafford, president, has filed a petition in the Superior Court requesting permission to renew its charter for a period of 20 years. No immediate increase in the capital stock is planned. The present owners of the company are the Hagler Brick Co., the Hankinson Brick Co., the Augusta Clay Products Co., and the Dunbar Brick Co.

FORM BRICK SALES COMPANY

G. W. Keeling and J. A. Cassidy, of Atlanta, Ga., well known in the brick and building materials trades over the southeast, have organized the Keeling-Cassidy Brick Co., selling a complete line of shale face brick, interlocking tile, floor tile and common brick thruout the southeastern territory. Offices and display room have been established by the new company at 1009-1010 Candler building.

Mr. Keeling was formerly vice-president of the B. Mifflin Hood Brick Co., of Atlanta, and was also at one time with the Legg Brick Co., the Georgia Brick & Tile Co., and Hood's Pottery Clay Products Co. Mr. Cassidy was manager of the building material department for the B. Mifflin Hood Brick Co., and was formerly secretary and treasurer of the Southern Asphalt Association.

FORM KITTANNING GREY BRICK CO.

The Kittanning Grey Brick Co., Wilmington, Del., has been organized under Delaware laws, with capital of \$100,000, to operate a plant in Pennsylvania for the manufacture of face brick. The company is represented by the Corporation Service Co., Equitable Building, Wilmington.

TURNS AWAY ORDERS

The Tuttle Brick Co., Middletown, Conn., is working to capacity and not taking orders for immediate future delivery as the output is sold. The production this year is expected to reach 40,000,000.

RELIEVED OF RECEIVERSHIP

The receivership of the Nebraska Clay Products Co. of Omaha has been dismissed by the district court, and it has been announced that the two plants at Tekamah and Humboldt would resume production immediately. John E. Haarmann is president of this concern, and Thomas Young, secretary.

BUSINESS BEST IN 38 YEARS, DICKEY SAYS

Business in the construction material line is looking up, Walter S. Dickey, of Kansas City, Mo., president of the Dickey Clay Works, said recently. Mr. Dickey said business at his various clay plants in June was better than it had been in 38 years, indicating that building is progressing on a larger scale than for many months thruout the country.

The Kansas City manufacturer was inclined to believe with European critics that full prosperity in the United States cannot be established until Europe's reparation problems are worked out.

He asserted, however, that prospects for a general building boom were bright.

**AT HARRISBURG, ILL.**

The Ford Brick & Tile Co. have a
BAY CITY EXCAVATOR

in operation with which they are **DISPLACING SIX MEN** in the pit. Heretofore seven men were employed in the pit to dig clay. Now they are using only one man to operate the Bay City Excavator, and the production of the plant has been increased considerably over their usual capacity, "35,000 brick daily."

The fuel consumption is exceedingly low, using but seven to eight gallons of gasoline and a small quantity of oil daily.

The Bay City Excavator is highly adaptable for the average plant of 25,000 to 100,000 brick per day. It will work in any weather, only one man needed on the machine to operate.

Ask for details

The Bay City Dredge Works
Bay City, Mich.

This FAIRFIELD MACHINE
With ONE MAN OPERATING

unloads and piles 50 tons of coal per hour with less than 1c per ton cost for power.



Full information and names of nearest operators will be promptly furnished on request.

THE FAIRFIELD ENGINEERING CO.
LANCASTER, OHIO

BRISTOL'S PYROMETERS

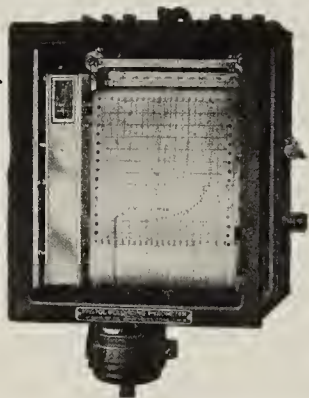
enable you to know at all times the temperatures of your kilns. They enable you to maintain even temperatures which are necessary to cut out waste and cracked ware. Competition is keen. Quality ware is in demand.

Eliminate guess work by installing BRISTOL'S Pyrometers. They accurately indicate and record temperatures up to 3,000 deg. Fahr.

Their rugged and simple construction and their scientific principles, make possible their use in all conditions.

Let us send you AE 291 today

The Bristol Company
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STEVENSON

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EXCEEDS ALL PRODUCTION RECORDS

Clarke Wilbur, who has charge of building material distribution for the A. B. Knowlson Co. of Grand Rapids, reports that the Zeeland (Mich.) Brick Co. has manufactured and sold 5,000,000 brick this season, which is a record number and indicates the amount of construction work going forward. The Knowlson Co. absorbs practically the entire output of the Zeeland Brick Co.

ORGANIZE \$400,000 COMPANY

The Merrimack Clay Products Co. of Boston, Mass., has been organized with \$400,000 worth of preferred stock, consisting of 4,000 shares of \$100 par and 6,000 shares of no par common, it is reported. M. Kimball Wentworth of Atkinson Depot, N. H., Mary A McGrath of Newton Centre and Marjorie E. Collins of Dorchester are incorporators.

NEW MARYLAND SEWER PIPE COMPANY

Thru the efforts of the Frostburg, Md., Commercial Club a new company has been organized in that city to manufacture sewer pipe. The concern will be known as the Frostburg Sewer Pipe Co. It will build a two press plant with a capacity of about 30,000 tons annually.

The company is capitalized at \$200,000, all the stock has been sold and the company starts business without bonded or other indebtedness. About two-thirds of the stock was sold to Frostburg business men, a portion was taken by parties from Ohio and Pittsburgh. D. A. Benson, vice-president of the Big Savage Fire Brick Co. of Frostburg will be president of the new concern.

The establishment of this plant is the result of months of effort by Secretary T. C. Carrington, of the Frostburg Commercial Club to first discover what particular line of manufacture the clays found in that vicinity were suited for, and then to interest sufficient capital in the erection of a plant. Experts from the U. S. Bureau of Mines and from the Maryland State Geological Department aided in the investigation of the various clays and in making of tests to determine their commercial uses.

Fire brick has been manufactured at Frostburg for many years and the clay deposits near the town are practically inexhaustible.

WILL ADVERTISE AT STATE FAIR

The P. Bannon Pipe Co. has already retained space at the Kentucky State Fair, during the week of September 11, for a display of brick and pipe lines, including sewer pipe, hollow tile, fire brick, flue lining, etc. The Southern Brick & Tile Co. also shows as a rule, featuring its drain tile for farm use, and handling a demonstration of machine laying of such pipe.

KENTUCKY COAL PRICES SOAR

"The coal market has gone hog wild," remarked one Louisville brick manufacturer, who stated that with an advance of 50 cents a ton on July 17, the market had hit \$6.50 a ton for Western Kentucky coal at mine, while Eastern Kentucky is quoted at from \$4 to \$4.50 a ton on last quotations, and is probably \$5 by now. Demand is heavy as some of the non-union fields are strike bound for cars and unable to ship, and Detroit, Chicago, and other points are bidding up prices for all available fuel, as railroads, public utilities, retailers and general industrial consumers are all in the market at once.

LOUISVILLE PRICES MAY RISE AGAIN

Demand for brick continues good in Louisville, Ky., as building operations are active, and July is expected to add another

million dollars to permits of \$9,000,000 already let this season. However, if the rail strike and coal strike situations do not ease there is danger of building materials reaching a level that will scare off additional building projects.

Brick men claim that they will be forced to advance another \$2 a thousand shortly if the coal market doesn't settle down. Locally common brick are quoted at from \$16 to \$19 and face from \$25 to \$28, some prices probably being a bit higher for super quality. Drain tile, hollow building tile, flue lining, sewer pipe, and so forth, have all shown improvement, altho fire brick are dull due to conditions in the steel and railroad industries.

BUYS \$40,000 WORTH OF MACHINERY

The Wichita (Kan.) Brick & Tile Co. has begun construction on its plant, and placed orders for brick machinery amounting to \$40,000, it is stated. The machinery building, office and power house will be erected first, and a spur will be constructed by the Missouri Pacific Railroad. Oliver Mourning, secretary, has announced that manufacturing will begin in 90 days. Sample brick burned from clay owned by the company include red heart, slate, and a chocolate face brick.

BUILDING PLANT TO MAKE HOLLOW WARE

The partnership known for many years as the Bellevue (Ia.) Pottery has now been incorporated for \$250,000 by the same owners, under the name of the Bellevue Clay Products Co. The company will continue to manufacture flower pots in its old plant, and will erect an entirely new and separate plant for the exclusive manufacture of hollow building block, drain tile and brick.

N. Y. BUILDERS TO ACQUIRE OWN R. R. YARD

The Associated Builders of Kings County, Inc., of New York, will soon be able to do their own hauling, according to an announcement by Zachariah Balton, secretary, that the organization is negotiating for a yard which has siding accommodations for about 35 railroad cars. A saving of from 20 to 30 per cent. on the cost of building material will be effected by this arrangement. The Associated Builders, as previously announced in these columns, is also operating a brick plant in New York.

CLAY MINING COMPANY ORGANIZES

Officials of the Edgar Brothers Co., Metuchen, N. J., clay miners, with properties in Florida and other districts, have organized the Milton A. Edgar Co., with capital of \$50,000, to engage in a similar line of work. Extensive operations are planned in the production and sales of high grade clays. The company is headed by Milton A. and N. G. Edgar, and M. A. Rock, all of Metuchen.

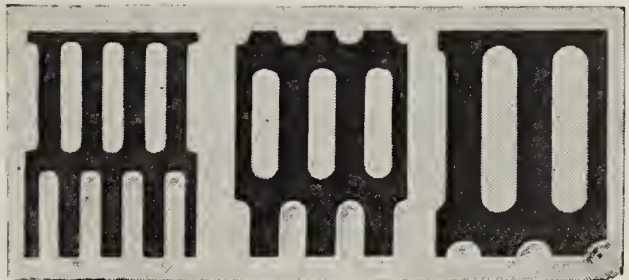
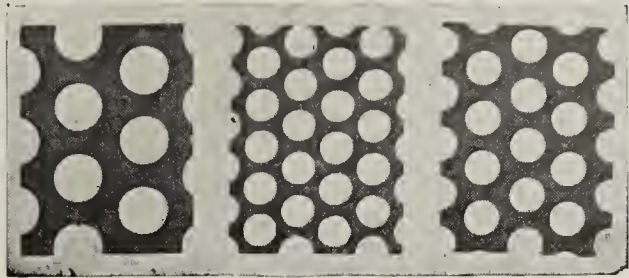
NEW JERSEY CLAY MINERS ACTIVE

Increasing activity prevails among the clay mining interests in the Raritan River section of New Jersey, and practically all of the companies in this line are developing an increased output. Among these are the L. H. McHose Clay Co., Perth Amboy; the Crossman Co., South Amboy; Hampton Cutter, Woodbridge, and the Whitehead Brothers Corporation, Perth Amboy. Good grade clay for fire brick production is in quite heavy call at the present time.

BUILDS CHAPEL FOR EMPLOYEES

The United Clay Mines Corporation, Crossley, N. J., has built a chapel for its employees, who number about 40 men. The entire force, with their families and numerous visitors, attended the dedication. Services are held every Sunday afternoon under direction of visiting clergymen. The

Perforated Steel Screens



For Screening Clay, Shale, Sand, Gravel, Stone and Cement

All sizes and shakes of holes in metal of proper thicknesses to give the best screening results.

Sheets furnished flat or rolled to shape for revolving screens.

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WOULD YOU LIKE TO MAKE BETTER BRICK ?

USE R. & H. PRECIPITATE CARBONATE OF BARIUM TO PREVENT SCUMMING AND THEREBY PRODUCING BRICK THAT ARE RICHER AND DEEPER IN COLOR, CLEANER AND CLEARER IN APPEARANCE.

IF YOU ARE TROUBLED WITH SCUMMING, WRITE US TODAY FOR CIRCULAR.

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CHEMICAL CO.,**

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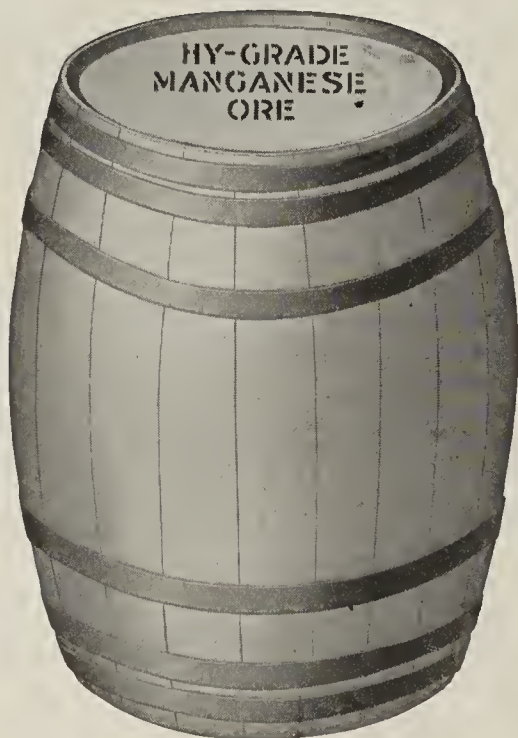
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HY-GRADE MANGANESE CO.
WOODSTOCK, VA.

Miner
and
Grinders

**Especially Prepared
for Brick Making**

church is non-sectarian. George Crossley, president, C. C. Engle, secretary and treasurer, M. C. Hendrickson, assistant sales manager, and Forrest Blakesley were instrumental in establishing the chapel, and report a keen interest on the part of the employees.

SHAWNEE PLANT SHUTS DOWN

Because officials of the United Mine Workers would not permit union miners to work under the old scale in mines owned by the Ironclay Brick Co., Shawnee, Ohio, that company was forced to shut down.

ORGANIZE KELLEY-SPIGUTZ TILE CO.

The Kelley-Spigutz Tile Co. has been incorporated with a capital of \$10,000 in Cleveland, Ohio, it is said. As incorporators have been named J. B. Kelley, William Spigutz, Dorothea Kelley, Margaret Spigutz and Fred Jyra.

ISSUES \$150,000 BONDS

A new bond issue of \$150,000 has been authorized by the directors of the Brown Clay Products Co. of East Sparta, Ohio. This company has made extensive improvements and installed a considerable amount of new machinery.

FRANKLIN PLANTS START UP

The two plants of the Franklin Brick & Tile Co., at Taylors Station east of Columbus, Ohio, are being operated with full forces following the settlement of the labor troubles at the plant. One of the plants is making face and common brick and the other plant drain tile and hollow building tile.

EQUIPPING ENTIRE PLANT IN CHINA

Complete equipment for a brick plant consisting of eight carloads of machinery, has been shipped by the Hadfield-Penfield Steel Co. of Bucyrus, Ohio, to Shanghai, China. It is probable a staff of workmen will be sent to China to start the plant.

FORM OHIO REFRACTORIES

The Ohio Refractories Co., of Portsmouth, Ohio, has been incorporated with a capital of \$100,000 to operate a brick and clay products business. Incorporators are M. K. Hitchcock, H. W. Heer, Norman Adams, B. H. Dillon, James A. Hager, George D. Selby and Roger A. Selby.

DRAIN TILE MEN HAVE GOOD SEASON

A meeting of the Ohio Drain Tile Association was held at Lima, Ohio, July 19 when matters connected with the remainder of the season were discussed. The season which has just come to a close has been an exceptionally good one and all manufacturers had good sales.

OHIO IRONDALE PLANTS ACTIVE

Irondale, Ohio, is fast approaching normalcy. Altho the effects of the coal strike are being felt most of the unemployment there is said to be voluntary. The McLain Fire Brick Co., of Pittsburgh, Pa., has two plants there now running 100 per cent. Plant No. 2 of the East Ohio Sewer Pipe Co. is running 100 per cent. but plant No. 1 is idle. The Banfield Clay Co. is operating at capacity and is employing 75 men.

COAL SUPPLIES FOR 30 DAYS' WORK

Another month of the present nationwide coal strike will close a large percentage of the brick plants in Akron, Ohio, and nearby districts according to information received from manufacturers. Because of the strike brick has increased in price from \$12.75 on May 1 to \$15 a thousand. Approximately

Analyses of the Coal and Clay Found Along the Line of the P. L. & W. R. R.

Coal—No. 6	Clay—No. 3
Water .....2.200	Silica .....59.84
Volatile	Alumina .....25.96
Matter ....35.540	Iron Oxide..... 1.68
Fixed	Titanium Oxide.... 1.60
Carbon54.705	Magnesium Oxide 1.08
Sulphur 1.725	Sulphuric Anhy- drideTrace
Ash 5.830	Alkali Oxides..... 1.22
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This territory is only 40 miles from Pittsburgh and the P. L. & W. R. R. connects with both the Pennsylvania and Erie Systems.

Write today for full particulars.

The Pittsburgh, Lisbon & Western R. R. Co.
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REDUCE YOUR COSTS by stopping Industrial Waste

Proper plant design in addition to raw material handling, combination and blending of clays, dryer and kiln efficiency, as well as many other points in the manufacture of clay products, permits of real service in engineering, provided such service is supported by wide practical experience, technical knowledge, plus the all-important factor of common sense and commercial ideas.

Our Engineering service is especially valuable to clay plants in consideration of the methods and policies of this organization.

WALLER CROW, INC.
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COUNSELLORS IN INDUSTRIAL
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327 S LA SALLE STREET
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Electric Motors and Generators for all requirements of the Brick and Clay Industry

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If ?

your fuel troubles keep you awake at night, how much would you pay for definite, authoritative, comparative information? Pages 172 and 174 of the 1922 Clay Products Cyclopedia contain all the information that you need, and will help end your worries.

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Chicago, Ill.

Enter my order for one copy of the CLAY PRODUCTS CYCLOPEDIA, the price to be \$3.00. I agree to send check upon receipt of invoice or return book in ten days after receipt.

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Address

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STOP! THINK!

\$4.25 per Doz.
\$48 per Gross



A Free Pair of Hand Pads will be given to readers of this publication, who have not been using Des Moines Hand Pads, as a trial test of their merit, provided said reader clips one of the pictures of the Pads, and encloses it with his letter-head.

Use Good Hand Pads

to protect your ware as well as your men's hands. Quality ware is in demand. Competition is keen. You cannot market ware with broken corners.

Des Moines mittens and hand pads will enable your men to handle ware efficiently and carefully, eliminating the blister bugaboo.

Ask for a dozen pairs on trial today. It will not obligate you.

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\$7.80 per Doz.
\$90 per Gross

"MINSTER" INDUSTRIAL LOCOMOTIVES

Assure maximum service
with a minimum cost for
upkeep.

2 to 8 ton capacities.

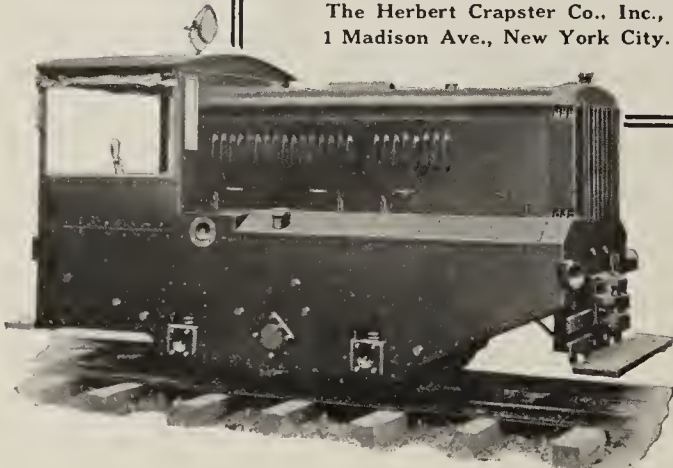
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**THE INDUSTRIAL
EQUIPMENT CO.**

510-516 Ohio St., Minster,
Ohio

Eastern and Export Department

The Herbert Crapster Co., Inc.,
1 Madison Ave., New York City.



one ton of coal is required for the manufacture of 1,000 brick, officials of the leading companies state. At the rate coal is now being received supplies will last only 30 days it is said. Other clay product industries will be similarly affected if the strike continues very much longer, officials state.

OHIO PRICES ADVANCE

With the coal strike causing a shortage in fuel and making the burning of drain tile more expensive, all manufacturers in Ohio have advanced the prices of their product about ten per cent. on the average. The advances include all sizes of drain tile. The reductions in freight rates on drain tile will not make up the difference in the selling price. Drain tile manufacturers enjoyed a good business in all parts of the Buckeye State according to reports made to the officers of the Ohio Drain Tile Association.

Prices of face brick also advanced about \$2 per thousand, selling from \$25 to \$36 f. o. b. factory. Common brick is selling around \$15 to \$16.50 delivered.

PLANNING 100% CAPACITY INCREASE

An increase in capacity of 100 per cent. is planned by the Superior Brick Co., Cleveland, Ohio. This company is building an addition of 400x120 feet to its plant at Jennings and Bradley roads. It is expected to increase the capacity to 100,000 brick a day. According to a report, the company is now working day and night shifts.

MAKING NEW INTERLOCKING TILE

The O. Brumbaugh Silo & Tank Co., Louisville, Ohio, is holding a patent on an interlocking construction for silos, grain tanks, oil tanks and stand pipes. This type of tile has been manufactured since 1908 as a side line by the Louisville Brick Co. In this period tile for over 2,000 structures was sold without developing a fault.

Some experts have pronounced this the best hollow tile construction. According to O. Brumbaugh, president and general manager of the company, an average of about 30 tons of ware is required to build a silo.

Mr. Brumbaugh was associated with the above mentioned company in the capacity of general manager, but sold out his interests recently and is now adding an improvement to the device, making it eight or ten times stronger, he says, and at the same time adding to the convenience of the material, which he claims will make it as easy to manufacture as building blocks, fireproofing or back-up tile.

The manufacturing rights of this product are open to a good reliable clay company in or near Ohio. Mr. Brumbaugh is contemplating expanding the business to such an extent that every state in the union, as well as in Canada, will have a plant manufacturing his product. In Ohio and western Pennsylvania considerable quantities of this product are in use without having any complaints registered against it. The O. Brumbaugh Silo & Tank Co. is considering the sale of state rights, and will consider reasonable offers.

OKLAHOMA WILL HAVE ANOTHER PLANT

Following the consummation of a deal between R. H. Harris & Son of Ada, Okla. and the Ardmore (Okla.) Chamber of Commerce, construction of a \$100,000 brick factory will soon be begun. The tract of land acquired by R. H. Harris has a deposit of brick shale. Daily output of the factory according to present plans will be 20,000 brick.

OREGON COMPANY REORGANIZES

Following the death of its president, Otto Hansen, the Salem (Ore.) Tile & Mercantile Co. found it necessary to reorganize. At a stockholders' meeting held July 1 the name of the com-

The SCHAFER POIDOMETER WILL—

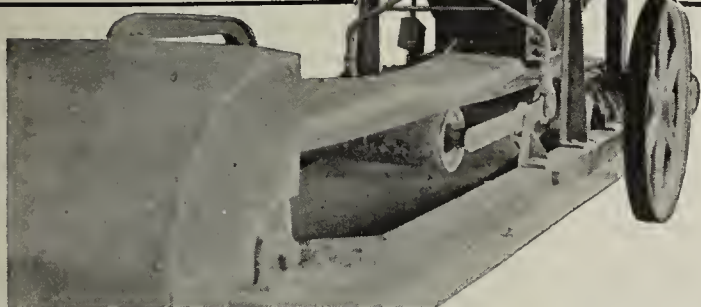
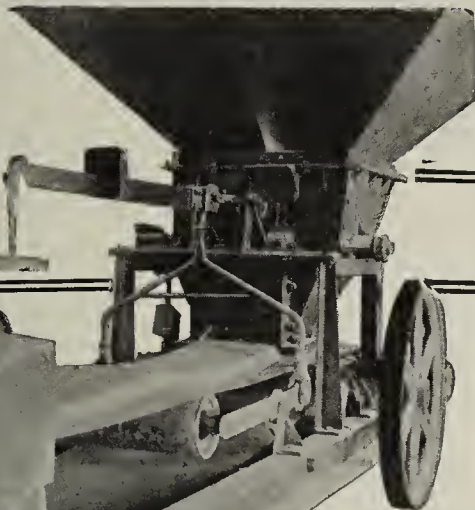
- unite any number of materials in correct proportions.
- deliver them to the pug mill in any pre-determined number of pounds per minute.
- produce a clay column evenly tempered of absolute uniformity.
- eliminate services of pug mill man.
- pay for itself in one year by reduction it causes in labor alone.

*You cannot afford to be
without it. Investigate!*

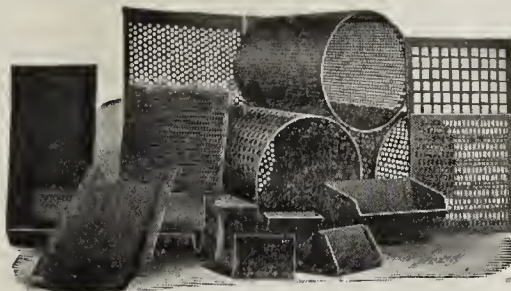
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GENERAL SHEET and
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Here's a cheap, quick way to get your clay



A progressive Indiana brick
plant saves time and money
by using Clark Tractors
to haul clay from the pit.

CLARK TRACTOR CO.

1124 Days Ave.

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DIESEL ENGINES FOR CLAY PLANTS

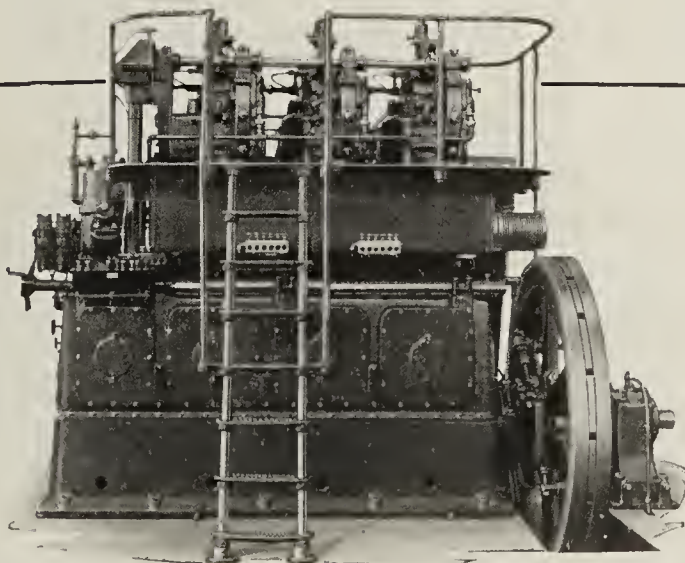
Economical Power—Efficient Operation—Convenient—Conservative—Complete—Easy to care for—Always ready and reliable.

This engine operates on cheap fuel oil. Fuel storage space decreased. A small amount of fuel makes a big amount of power.

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or horizontal types furnished.*

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Bucyrus Ohio**

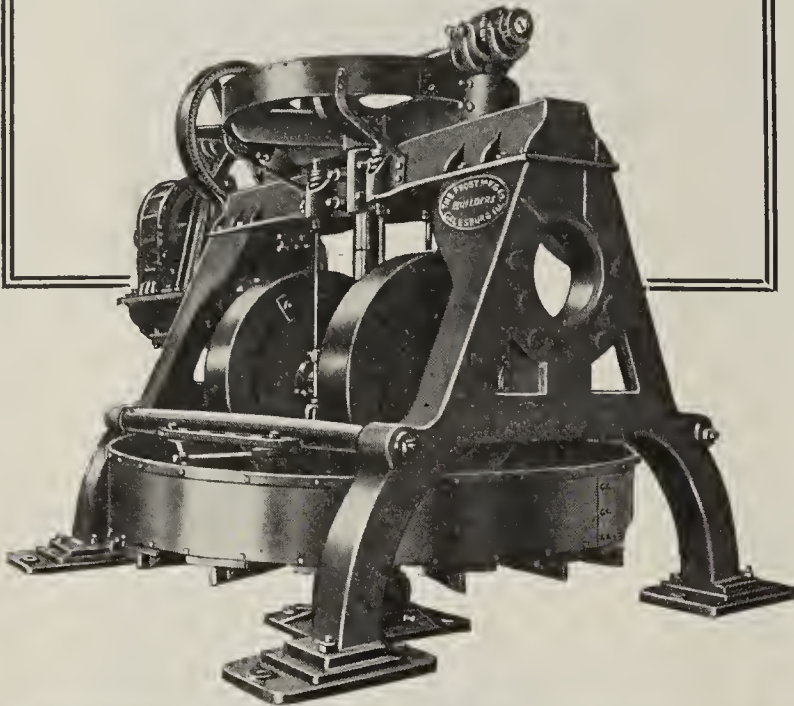
Formerly the American Clay Machy. Co.



BETTER QUALITY WARE

That is the result when Frost
Dry Pans are put on the job.

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QUALITY ECONOMY SERVICE

When You Need Kiln Banding

It will pay you to take
advantage of our ten years'
experience, and at least
let us quote our prices.

Gallagher Brothers Kiln
Banding is quality made
and produced.

Inquire today

Gallagher Brothers
Uhrichsville, Ohio

pany was changed to Salem Brick & Tile Co., the new company to assume all the obligations of the old company, and the business will be conducted in the same manner. Election of officers and directors resulted in the following: President, W. E. Wilson; secretary and treasurer, F. E. Meer; vice-president and general manager, C. E. Albin; these men also constitute the board of directors.

J. A. GOODWIN BUYS PLANT

John A. Goodwin, who operates a brick plant in Philadelphia, tells us that he has recently bought the plant of the American Brick Co. with 13 acres of land at Perkasié, Bucks County, Pa. Mr. Goodwin intends to operate both plants.

SHIPS A MILLION BRICK IN ONE WEEK

The Shale Brick Co. at Royalton, Pa., is busy filling orders from Philadelphia in addition to supplying brick for several local houses which are being erected. A shipment of 1,000,000 brick was sent to the Quaker City during one week.

MOTORS SUPPLANT STEAM ENGINE

Installation of electric motors to replace the steam engine for driving power, is delaying operations at the plant of the Auburn Shale Brick Co., near Gettysburg, Pa. About five weeks will be necessary to complete the work, after which the capacity will be increased to 25,000 face brick daily.

KITTANNING COMPANY CHANGES HANDS

The brick plant at Cowanshannock, near Kittanning, Pa., formerly operated under the name of the Kittanning Clay Products Co., has been acquired by E. H. Perkins, Wayland, N. Y., D. D. Cotterell, North Coshocton, N. Y., and James Graham, New York City, it is said. The new owners will manufacture the same product as turned out by the Kittanning Clay Products Co.

CAROLINANS FIGHT UNJUST RATE

South Carolina brick manufacturers gathered at Columbia on July 6 to attend a hearing before the Railroad Commission on the question of adjusting the brick rates to eliminate what is said to be a discriminatory rate against Augusta, Ga. The commission reduced the rate one cent per hundred pounds up to 75 miles in July, 1921, and Augusta shippers now want this put back to the former basis, with the ten per cent. reduction of July 1, 1922, to apply.

FISCHER BUILDING NEW HOME

W. W. Fischer, of the Fischer Lime & Cement Co., Walnut St., Memphis, Tenn., is having erected a modern residence for his own use on South Boyd Place a few blocks west of his office. It will be of a modern type of architecture with all modern conveniences.

GETS PLANT READY, NO COAL

We received the other day a letter from Thomas Simpson, brick manufacturer in Columbia, Tenn., informing us that he has been quite busy all season getting his plant in operation. The only delay which Mr. Simpson is now experiencing is due to inability to get coal.

BRICK COMPANY ISSUES BONDS

The Salt Lake Pressed Brick Co., of Salt Lake, Utah, is offering \$400,000, 7½ per cent., serial gold bonds, maturing yearly from 1928 to 1937.

This company was organized in 1891 and since that time has paid stockholders \$449,850, also enlarging and improving the plant.



GENUINE!



Figure 106—
Jenkins
Standard
Brass Globe
Valve.

The Jenkins "Diamond Mark" and signature, as shown to the left, are cast on the body of every Jenkins Valve.

They identify valves of the original and true stock—those made and guaranteed by Jenkins Bros.

Today, as for fifty-seven years, Jenkins Valves are the natural choice of those who seek assured valve service.

Their universal satisfaction has formed a national reputation and a standard by which other valves are judged.

Power plant, plumbing, heating, and industrial valves in brass, iron, and steel. Supply houses everywhere.

JENKINS BROS.

New York
Philadelphia

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Jenkins Valves
SINCE 1864

*You Can Get a Good
Refractory by Buying*

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FIRE CLAYS

Anness Fire Clays have several advantages which make them especially successful. They are infusible, having an exceedingly high melting point. They resist all mechanical corrosion, and will withstand sudden changes without cracking.

Let us quote you prices

*The ANNESS & POTTER
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**USE "Brick and Clay
Record" Classified
Ad Columns because
you'll get quick action.**

Published every other Tuesday, it's the **newspaper** as well as the journal of the clay-products industry.

If you need help—have a machine for sale or are looking for a second-hand machine—a classified ad in "Brick and Clay Record" will bring results.

Eight cents per word for first insertion; six cents per word for each additional insertion.

BRICK AND CLAY RECORD

TORONTO
"means"
DEPENDABILITY

You can depend on Toronto Clay Working Machinery for results.

Send for catalog.

Toronto Foundry & Machine Company
Toronto, Ohio



10 ft. Standard or Type "B" Dry Pan

One Man—Or Three

Item 258, Clay Products Cyclopedia says: "One man burning with oil can do the work of three burning with coal."

But it is necessary to have an oil burner attached which will insure the greatest economy.

The Smokeless Oil Burner

(Patented)

will positively insure the greatest economy. These burners have been in successful operation for several years. Their simplicity and economy of operation have been proved time and time again. The user may be assured the utmost satisfaction.

The SMOKELESS OIL BURNER may be used with either steam or compressed air.

If You Burn With Oil

or if you are considering oil burning equipment it will pay you to get in touch with us. Suggestions from our engineers may save you money—and they do not obligate you in any way.

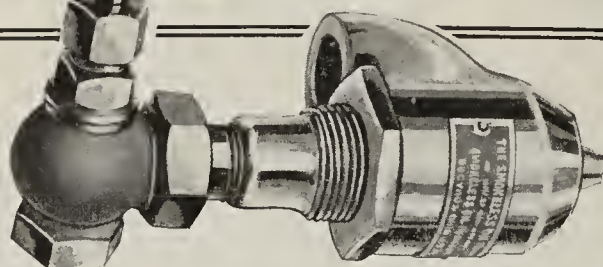
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SMOKELESS OIL BURNER CO.

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Air Compressors
Blowers—Pumps
Meters



It's Not So Much What You Pay for Machinery, But What You Save by Paying

The cost of machinery never denotes economy. It's the years of satisfactory service you get out of it that proves its worth.

Wherever The Eagle Shale Planer is used there is **ECONOMY AND EFFICIENCY**. It's the most up-to-date shale gathering machine on the market today.

*Write us today and let us explain
what the Eagle will do for you.
No obligation*

EAGLE IRON WORKS

Des Moines

Iowa



WASHINGTON BRICK MEN WANT TARIFF

The brick and clay industries of the state of Washington seem to be quite wide awake, and just now they are much interested in the efforts of Senator Gooding of Idaho to secure a 25 per cent. tariff on brick. The plants of Washington and Idaho have to meet the competition of Canada, and Canada protects her home market by a tariff of 24½ per cent. The American plants ask that they be placed on an equal footing.

WEST VIRGINIA PLANT DAMAGED

Fire starting in the blacksmith shop on the south side of the West Virginia Paving & Pressed Brick Co. at Huntington, W. Va., damaged this plant to the extent of \$7,000 or \$8,000. Machinery was not damaged badly, and operations were resumed several days later. The fire was of unknown origin.

MILWAUKEE SHARES BUILDING BOOM

Building material prices are increasing, due to the heavy demand caused by unusual activity in building in every part of the country, according to Building Inspector W. D. Harper. Milwaukee, Wis., who in announcing building permits and valuations for the year to date in Milwaukee, revealed that the city's building program this year is already \$4,000,000 ahead of 1921 with all indications pointing to a \$10,000,000 margin in December.

The year to date shows an increase of building permits and values in Milwaukee from 16,221 permits this time last year to 17,691 this year and values of \$12,714,000 and \$17,181,000 respectively. The month to date shows 1,229 permits valued at \$1,009,305 against 1,357 permits last year worth \$1,047,038.

HEATH TILE COMPANY IN CANADA

Heath Unit Tile Co., Ltd., Toronto, has been incorporated with a capital of \$50,000 to manufacture and deal in clay products.

PURCHASE PLANT LONG IDLE

The Sinden Brick & Tile plant at Tillsonburg, Ont., which has been idle for several years, has been purchased by Cowell Bros., who have started necessary repairs and additions. The plant will be put in operation as quickly as possible. A good trade was enjoyed when the plant was running a few years ago.

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THE BUILDING SITUATION

(Continued from page 101)

period of 1922, more than \$18,000,000 has been invested in dwellings, and by far the majority are of brick.

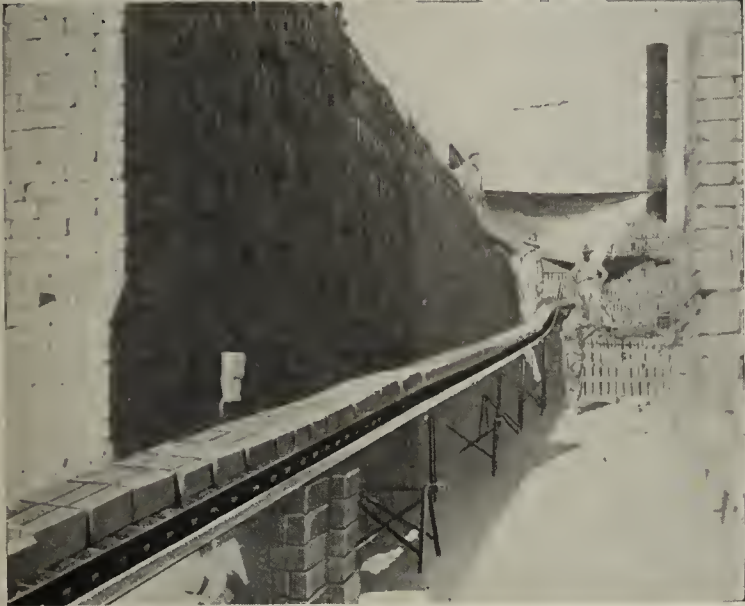
Baltimore Shows Decrease

The strike of carpenters at Baltimore, Md., and other local labor difficulties have had the effect of slowing up construction during June. The local department reports a total volume of work of \$2,658,500 for the month, as compared with an aggregate of \$4,237,600 in May. The month just past shows, also, a decline in connection with the same month of last year, which recorded a total of \$3,328,700. The outlook is encouraging, and as soon as labor dissensions are settled, a heavy influx of new operations, both residential and industrial, are expected.

Pittsburgh District

Contracts awarded during June in Western Pennsylvania, West Virginia, Ohio, Kentucky and Tennessee amounted to \$54,454,000. Altho this was a decline of 25 per cent. from the May figure, it was 16 per cent. ahead of June, 1921.

During the first half of the year construction has been started in this district to the amount of \$261,573,000, an increase of 22 per cent. over the corresponding period of last year. The six months' record shows: Total residential construction, \$86,-



The Brickmaker's Friend

It would be a difficult matter to find a more fitting name to apply to Standard Ball-bearing Roller Brick Conveyors.

These sectional, untiring, ever ready conveyors have been tried and never found wanting in times of need.

Unlike the usual portable power driven mechanical contrivances, they never endeavor to shirk a day's or even a portion of a day's work by pleading, "out of order."

Operated by a perpetual power, GRAVITY, the sensitive ball-bearing rollers respond instantly and freely to the pressure of the load, and riding friction free, brick and all clay products are transported from car to pile or vice versa.

Our representative in your territory will gladly call and show you how effectively a few sections of these time- and labor-saving conveyors will operate in your yard.

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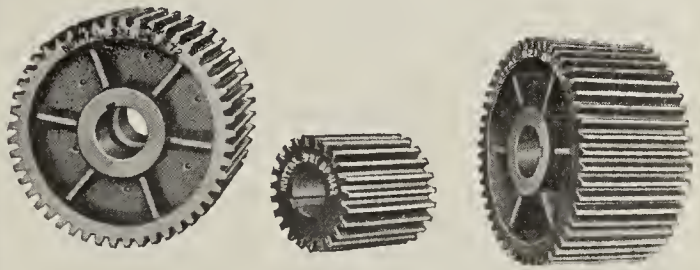
Representatives in all principal cities

Which Is Cheaper?

Any old pinion at \$10.00

—or—

A BP Pinion at \$13.50?



It will take four ordinary untreated pinions to equal the life of one BP. We guarantee that under a good old fashioned money back guarantee. The BP Pinion will save you three pinion changes—that counts heavily too, so the answer seems to be that you would save \$26.50 purchase price or better than 66 per cent plus labor cost of three changes—and often the cost of shutting down and stopping production.

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have a long and honorable history in brick plants. They are the ones for you to install provided you are trying to get the most for your money. The maintenance cost on systems that have been in use for years is rarely more than \$2.00 per thermocouple per year. In no other way can you purchase so cheaply the information that will enable you to make your business more profitable by cutting out easily preventable wastes.

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584,000, which is 50 per cent. ahead of last year; mercantile construction, \$48,166,000, or 116 per cent. ahead of last year; public works and utilities, \$49,551,000, or 29 per cent. under last year; industrial plants, \$25,760,000, or 28 per cent. ahead of last year; and educational buildings, \$25,439,000, which is 19 per cent. ahead of last year's six-month record.

Contemplated new work reported during June amounted to \$77,572,000.

The Central West

June building contracts in the Central West (comprising Illinois, Indiana, Iowa, Wisconsin, Michigan, Missouri and portions of Eastern Kansas and Nebraska), amounted to \$104,412,000. This total (1 per cent. over the previous month and 74 per cent. over June, 1921) is the largest monthly figure for this district since October, 1919.

From January 1 to July 1 the amount of construction started in this district was \$471,013,000, which is 45 per cent. greater than the work started in the first six months of last year. The record for the first half of 1922 shows: Residential construction, \$147,497,000, more than double the amount for the first six months of last year; public works and utilities, \$111,258,000, or 25 per cent. ahead of last year; business buildings, \$65,171,000, which is 28 per cent. ahead of last year; educational buildings, \$54,500,000, or 17 per cent. ahead of last year; and industrial plants, amounting to \$40,756,000, being 56 per cent. ahead of last year.

Contemplated new work reported in June amounted to \$164,883,000.

The Northwest

June building contracts in Minnesota, the Dakotas and Northern Michigan amounted to \$10,518,000. Altho this was a decline of 4 per cent. from May, it was 24 per cent. over the figure for June, 1921.

During the first half of this year construction contracts have totaled \$47,425,000, an increase of 22 per cent. over the corresponding period of last year. In the six-months' record are the following items: Residential buildings, \$13,664,000, an increase of 46 per cent. over the first half of 1921; public works and utilities, \$13,351,000, an increase of 18 per cent.; educational buildings, \$9,321,000, an increase of 22 per cent.; business buildings, \$5,551,000, an increase of 103 per cent., and industrial buildings, \$1,774,000, an increase of 140 per cent.

Contemplated new work reported in June amounted to \$8,783,000.

Among Our Advertisers

Details Concerning New Models, Changes in Personnel, News Matters, etc., That Our Advertisers Believe Will Interest Our Readers.

AMONG OUR ADVERTISERS

It is interesting to read what the men who know by experience, say about a system used in their own industry. For this reason the following letter from the Dixie Brick Company, Columbus, Georgia, is reproduced as indicative of their experience with the Minter System of Drying and Burning:

"Referring to your Kiln System and Waste Heat Dryer installed by you for this Company, in use now about a year, wish to say all claims have been met and results are most satisfactory.

"The writer has had more than thirty years' experience in clay manufacturing and your system is by far the best he has ever seen."

BRICK and CLAY RECORD

Established 1892. Now in its thirtieth year.

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By Industrial Publications, Inc.

Entered as Second Class Matter January 2, 1911. at
the Post Office, at Chicago, Ill., Under
the Act of March 3, 1879.

Terms of Subscription
One Year—(26 Numbers)
United States.....\$3.00 Foreign\$4.00
Single Copies.....25c

Member of Associated Business Papers, Inc.
Member Audit Bureau of Circulations

Published Every Other
Tuesday by

Industrial Publications, Inc.

Telephone: Harrison 9462

407 S. Dearborn St. Chicago

Branch Offices
New York Cleveland Kansas City

Address all communications to home office

Chicago, August 8, 1922

Vol. 61 No. 3

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Standards of Practice for Business Publications

The publisher of a business paper should dedicate his best efforts to the cause of Business and Social Service, and to this end should pledge himself: 1. To consider, first, the interests of the subscriber. 2. To subscribe to and work for truth and honesty in all departments. 3. To eliminate, in so far as possible, his personal opinions from his news columns, but to be a leader of thought in his editorial columns, and to make his criticisms constructive. 4. To refuse to publish "puffs," free reading notices or paid "write-ups;" to keep his reading columns independent of advertising considerations, and to measure all news by this standard: "Is it real news?" 5. To

decline any advertisement which has a tendency to mislead or which does not conform to business integrity. 6. To solicit subscriptions and advertising solely upon the merits of the publication. 7. To supply advertisers with full information regarding character and extent of circulation, including detailed circulation statements subject to proper and authentic verification. 8. To co-operate with all organizations and individuals engaged in creative advertising work. 9. To avoid unfair competition. 10. To determine what is the highest and largest function of the field which he serves, and then to strive in every legitimate way to promote that function.

Let There Be Light!

Not very many years ago business was in darkness, and the utmost secrecy was maintained regarding all information pertaining to the conduct of its affairs. Now, however, business is working in the light of information, and the shadow of secrecy has been dispelled.

We believe that the more you know about a thing, the greater will be your interest. Understanding makes for harmony and mutual benefit. If you knew the story of industrial publishing, we feel that you would better appreciate the efforts of industrial papers in their support of business.

When the American Face Brick Association published its booklet, "The Story of Brick," it marked one of the achievements which has benefited the industry inestimably because it enlightened the public on many of the mysteries concerning brick manufacture, and because the book has built much goodwill for brick.

Industry's University

is the industrial press and, as E. N. Hurley, former head of the U. S. Ship Building Corporation says, "There is no teacher whose work is more essential in both the progress of our commercial and industrial world."

The Industrial Paper Serves Its Industry Primarily in Three Ways:

By gathering and spreading information within its special field.

By promoting the interests and aiding the development of the industry it serves.

By providing a clearing house for trade ideas and business possibilities in its field.

Pages in future issues of Brick and Clay Record will tell how the industrial press fulfills each of the three functions mentioned above.

The EDITOR'S CORNER

Get Set For the Better Business Era

IT IS NOW very generally recognized that this country is again at a stage where the fundamental conditions are such that industry is all set for a period of improving conditions. Detours have been eliminated, and the road is paved and open for a smooth journey to prosperity.

Analysis of reports from all prominent economists, financiers, and business men shows agreement of opinion that the business status of this country is excellent. Bradstreet's, Harvard Economic Service, The Analyst, the U. S. Industrial Employment Survey Bulletin, the U. S. Department of Commerce Bulletin, Babson and Moulton's Weekly Analysis all give cheerful news of the future. Rail tie-ups and coal famine possibilities will only temporarily interfere with business, but will do no permanent harm, since the fundamentals are correct, these statisticians say.

A glance at some of the basic conditions in industry all of which are very favorable gives credence to these reports, and we are undoubtedly justified in being optimistic and having great faith in the excellent status of business. Crops are good; steel mills have plenty of orders; construction is heavy; the automobile industry is having its best year; car loadings are high; insurance business is gaining; the credit situation is better; bank loans have been reduced; investment buying has increased; deflation is practically completed, and so forth.

Having reached the turning point in the business outlook, firms are justified in breaking all constraint and planning for a period of good business over a long stretch. Naturally, that establishment which is best equipped—its policies revamped to meet modern conditions, and its methods altered to produce, sell and distribute at lowest cost and with highest quality and service—will be in position to reap the greatest harvest out of the forthcoming period of good conditions.

The clay products industry in general has just had a taste of what the

coming years promise for all business. Due to the fact that the construction industry was farther behind than other industries, it became the forerunner of the better business era.

There will be several years of activity in the construction field equally as good as this year. This means that plans for development of establishments can be put into operation with safety. The cautious and conservative policy of the past two years can be reversed to one of aggressive action.

Again let us say, don't let the threats of coal famine and rail tie-up concern you too much. They are temporary obstacles that will slow up business for the time being, but will not affect the fundamentals which augur for improvement. Remember, it makes a difference when these readjustments are downward and in industry's favor, rather than upward, as they were in 1918 and 1919.

If you are to take advantage of the better business era now being ushered in, you must begin to make your plans immediately. Don't be caught napping!

* * *

Wage Comparisons With Cost of Living

ONE of the most comprehensive studies of wages has just been completed, and a report compiled by the National Industrial Conference Board. This analysis covered over 1,000,000 wage earners in 26 industries, comprising 3,800 establishments in the chief manufacturing industries, from the pre-war period up to the close of the year of 1921.

The report shows the relation between earnings and cost of living and gives the comparisons which influence the purchasing power of money received or, in other words, real wages.

Starting in July, 1914, with index number 100 for cost of living, for money and for real wages, in July, 1920, when the cost of living had risen to the index figure 204.5, hourly earnings had increased to 252 and weekly earnings to 240. Thus, in July, 1920, the real wage based on hourly earnings was 123, while the real wage based on weekly earnings was 117.

The decline in the cost of living subsequent to July, 1920, continued to increase the real hourly earnings, so that in March, 1921, real hourly earnings stood at 135. During the next three months, real hourly earnings remained at 132, but beginning in July, 1921, and continuing thru the remaining months of the year, there was a continual decline, so that in December, 1921, real hourly earnings of all wage earners stood at 122. In other words, at the close of 1921 real hourly earnings were 22 per cent. higher than in July, 1914.

The peak of real weekly earnings occurred in October, 1920, when the index stood at 121. The following months showed considerable decline, caused chiefly by shortening of working hours, but the last six months of 1921 showed a more or less permanent level of real earnings. The latter is due to an increase in working hours and decline in the cost of living. In December, 1921, the index of real weekly earnings for all wage earners stood at 111 or 11 per cent. higher than in July, 1914. Measured on this basis, the economic status of the wage earner in the principal manufacturing industries of America was 11 per cent. higher at the end of 1921 than before the war, despite wage reductions and part-time employment.

At this time, when good workers are scarce and men frequently hint around for higher pay, such facts as these are extremely valuable. Undoubtedly, in many cases if a clay plant would make a study of wages received by its men, and compare them with cost of living changes, similar results as those found by the National Industrial Conference Board would be obtained.

It might be very influential if every plant would post on its bulletin board a card gotten up in attractive style, showing the increased purchasing power of the present wage earned by the worker. Drawings for food, clothes and luxuries, such as gasoline for the worker's Ford, on a comparative basis, would serve much to promote better understanding and harmony.

Coal, Not Rail Strike, Feared Most

Coal Holds Key to Industrial Situation—How Coal Strike
Could Be Handled—General Business Better in Autumn

OBSERVATIONS of the effects of the varying economic conditions in this country during the past five years have taught us that it takes a force of considerable magnitude to overcome the inertia of existing business conditions—good or bad. It took more than the “overall movement” to stop the wild spending orgy of 1919-20. Likewise, it took a great deal of preaching optimism and price-reducing to stimulate optimism again in 1921-22.

It is because of the need of this tremendous force to change the psychological state of mind of the American public that the present business situation is viewed with some alarm despite the optimism displayed by many economists. Strikes threaten to be that huge force that can stop the splendid headway recently made in the business situation. It is not intended that conditions be viewed with pessimism, but there is reason for some concern.

Iron and steel plants are becoming pinched for fuel, and many furnaces are banked. Products that enter into the construction industry are, many of them, manufactured by means of large quantities of coal. Clay products, cement, and lime plants are closing down, and shortage of building materials is already being felt by many centers. Should the steel and construction industries be curtailed seriously, it would undoubtedly bring about a reaction that the better situation of the farmers would find it difficult to overcome.

Autumn to See Business Improvement

While these are the views of many in industry, there are others, and included among them some of the best minds in business and finance who, despite these discouraging aspects, look thru the fog of strikes and disturbances to see a period of pronounced betterment which they expect at a time not more distant than the coming autumn.

Much has been said in regard to the railroad strike and its dire aspects, but it has been less potent than would appear on the surface. Within the past month, car loadings, including coal, have been far in excess of 1921, and excluding coal, have broken all records in the history of railroading, with the exception of a brief period in September and October of 1920. That does not sound as tho the railroad strike was stifling business.

Of course, railroads have been pushed and undoubtedly would be quite hard put were the coal strike settled, yet business would manage to get along with little confusion.

The coal situation, however, is becoming acute. Coal must be produced in greater quantities in the immediate future, since it undoubtedly holds the key to the industrial situation. Last year Great Britain passed thru a strike crisis which had many points of similarity with the great problem now confronting American industry. The result, in a country where union organizations are much more powerful than in the United States, was almost total defeat for the forces of disruption. In the light of the similarity of the situations, it will be of interest to note how this was accomplished.

Why British Coal Strike Collapsed

The collapse of the Great British coal strike just three months after it started was undoubtedly due to the prompt steps taken to forestall violence, to the organization of the country to resist the pinch of coal shortage, and to the pressure of the Government continuously applied to both sides until a reasonable settle-

ment was reached—a settlement, incidentally, which has resulted in a 50 per cent. reduction in British coal miners' wages in the past year.

Within a few days after the Miners' Federation of Great Britain called out its million members, on April 1, the so-called Triple Alliance threatened a sympathetic strike of railway and transport workers of all kinds. Immediately the government mobilized the regular army reserve and inside of 10 days put 500,000 men in the field with full equipment. This gave the government 650,000 troops with which to quell possible disorders. The threatened railway and transport strikes never materialized. Camps were established outside each important industrial area and at strategic points along the railways. Confronted by this force, the mob element among the strikers was completely overawed. There were only incipient outbreaks here and there which were easily dealt with by the police.

Impose Wartime Restrictions

The next step was the reimposition of the wartime coal control and priority system, only in this case the order of priority for fuel was as follows: Railways; steamships in foreign trade; households; public service companies; manufacturers of food, ice, and so forth; general industry. No householder was allowed to buy more than two hundred-weights (224 pounds) of coal per week. Half the passenger and freight trains were cancelled to save fuel. Gas and electric lights were cut off at 10 p. m. daily. Manufacturers, except food, were allowed to purchase fuel sufficient only for 50 per cent. operations.

Little or no opportunity was given the striking miners to obtain substitute employment, and they were refused the national unemployment pay of £1 per week. Finally continuous pressure was exerted both on the employers and the miners to reach a reasonable settlement, and both parties to the dispute knew that the public was willing, if necessary, both to sacrifice and fight for such a settlement.

The efforts to handle the coal strike in this country have been indeterminate. The nation has not as yet found the trail that will lead to peace between miners and operators. Precautionary measures have been taken such as the setting of fair prices and the determination of priority orders.

As this issue is going to press a conference between the union chiefs and operators is in session at Cleveland. Failure of settlement at this conference which Illinois operators refused to attend may prolong the strike indefinitely, altho Government operation of the mines to prevent a famine in the event of failure has been hinted at.



FOREIGN TRADE BUREAU IN ATLANTA

B. C. Gelsinger, manager of the new Atlanta office of the Bureau of Foreign and Domestic Commerce, advises that the Atlanta district will comprise the five states of Georgia, Alabama, Florida and North and South Carolina. Manufacturers or jobbers located in any of these states and interested in the further expansion of foreign trade, or in the methods of starting and developing this trade, especially with Latin-American countries, may get in touch with the bureau by addressing the Atlanta office, Room 205, Chamber of Commerce Building, after August 15, at which date the office will formally open.



Five Pages from the B. Mifflin Hood Brick Co.'s Wonderful Booklet, "Burned Clay Products," Which Will Serve to Give an Idea of the Style and Character of the Volume.

B. Mifflin Hood Publishes Remarkable Book on Clay Products

WHAT IS UNQUESTIONABLY one of the finest and most beautiful booklets ever designed to advertise clay products, has recently been put out by the B. Mifflin Hood Brick Co. of Atlanta, Ga. Besides being a work of art in typography, printing, layout and design, the book is a graphically illustrated argument for the use of clay products which will carry immense weight with architects and anyone planning to build. Superlatives and strong adjectives are necessary to do justice to this excellent work.

"Burned Clay Products" is the title of the book and, as the foreword says, it is addressed to architects with three distinct objects in view:

"First: To define the policy of this company in its relations with architects and to acknowledge our appreciation of their professional status.

"Second: To inform them of the service and facilities extended to architects thru a complete organization of broad experience and thoro technical training in the field of ceramics.

"Third: To place at their disposal the resources of this company as manufacturers of brick and tile, and acquaint them with the scope and character of our products."

In our estimation the book will certainly accomplish its objects since it cannot help but compel attention from the architect. The entire work is an exposition of Hood's "Pottery"

products and the ways in which the various types of products can be used to best advantage in all classes of buildings are forcibly brought out by photographs showing brick, tile, and so forth in actual use. Here are shown beautiful gardens among whose leafy recesses wind alluring walks of brick which lead one onto a porch constructed of brick with a floor of "Random Rubble," which are irregularly shaped flat tile. These tile make a beautiful floor, the unsymmetrical shapes making an expanse which is entirely free from all suggestion of monotony. This tile is also used for driveways.

A considerable section of "Burned Clay Products" is devoted to fire place design and interior uses for face brick and tile products. Such things as porches, kitchen and living room floors, corridors in high schools and churches, lobbies of theatres, solarium floors, floors of restaurants and cafes and other interior uses are illustrated.

The highest praise is due to the enterprising B. Mifflin Hood Brick Co. for the publishing of this remarkable booklet. We believe it will create a tremendous amount of interest among architects in the more diversified use of clay products. This advertising will naturally result in direct benefit to the B. Mifflin Hood Brick Co., but on the other hand it cannot fail to be of benefit to the entire industry by creating a greater desire in architects to make more extensive use of clay products.

Who Will Lay Your Brick and Tile?

Clay Products Use Is Increasing While the Number of Bricklayers Is Decreasing—Few Men Being Attracted to Bricklayer Trade—Manufacturers Should Help to Get Trade Started in Schools

CONSTRUCTION has just awakened with a sudden start to the realization of a situation of the gravest importance to the future of the industry. It is a well known fact that man in the perversity of his nature will spend great sums of money to cure unfortunate situations when they arise, but will pay comparatively little attention to any movement which will prevent unfortunate situations from arising. The inability of the average business man to see beyond the confines of his immediate business activity and appreciate the larger things which are of fundamental importance to the conduct of business is responsible for much grief, inefficiency and waste.

Those facts have forcibly come to the front during the present boom in construction, which has brought with it an acute shortage of building mechanics who are skilled in their trade. This has put a premium on skilled labor and resulted not only in greatly increased wages thereby increasing the cost of building, but thru the enforced employment of those not properly qualified has permitted a lowering of the standard of construction to the detriment of construction thruout this country.

Few Young Men Attracted to Building Trades

A study of the various trades in the building industry will bring out the fact that very few of our young men are being attracted to them. With the exception of the electrical trade building trades are not generally viewed by young men as vocations to which they might care to devote their lives. Go to any building under construction and make a careful survey of the ages of the men engaged in the various trades. The bricklayers, carpenters, plasterers, and other mechanics or craftsmen, as we should prefer to call them are hardly ever young men, the majority are men who have spent many years at their trades and are not a great distance from the time of retirement. This naturally means that when these men have outlived their usefulness there will be an ever smaller and smaller percentage to take their place, building mechanics will become scarcer, wages and costs will increase and the standards of efficiency will decrease. How much longer will it take manufacturers of materials to fully wake up to this fact? We are gratified to note that the new American Construction Council has recognized the gravity of the situation but speedy action must be taken.

This shortage of building mechanics is a real thing, as any contractor can vouch for and is especially noticeable and acute in the bricklaying trade. With every sudden increase in construction activity, contractors begin to search wildly for bricklayers and to offer enormous wages as inducements. Read the "Help Wanted—Male" columns of our newspapers for confirmation of this statement. This thing has recurred so often that builders have gotten into the habit of safeguarding their bids by adding a substantial amount to the cost of the masonry work.

Bricklayer Shortage Affects Manufacturers' Markets

The importance of the question to the manufacturer of brick or hollow tile must not be overlooked, because it concerns very vitally and directly his markets. When the manufacturer of vacuum cleaners, shoes, typewriters, and so forth has sold his product he is finished with it. It goes directly into the hands of the consumer who proceeds to make use of it. With brick

or tile it is different. The manufacturer produces a brick or a tile and sells it. As a brick or tile it is valueless to the ultimate consumer. It must be put into the wall of the building before it has begun to function. Unquestionably, the clay product manufacturer's sales efforts should not end until his product has been placed in the finished structure.

The reasons for this are obvious. For one thing, the consumer is only concerned how the brick or tile will look in his finished building; no matter what the beauty or the quality of the ware, if it is carelessly put together and a sloppy job results it will mean prejudice against the clay product. The inability to have brick or tile laid when it is wanted also encourages the consideration of substitutes and possibly loss of sale.

How the Manufacturer Is Interested

The manufacturer of brick or tile is interested in the bricklayer's capacity, quality and cost. These three things affect indirectly, but none the less certainly, the sales of the manufacturer. The capacity of the bricklayer, that is, the number of brick which it is possible for him to lay efficiently in a day, has considerable influence on the cost of a brick structure. The cost of wages also has a bearing on the cost of a brick building. The quality of his work is of the utmost importance because that decides the appearance of the finished product and the difference between a good brick building and a poor one. The quantity and quality of the bricklayer's work, like that of any other craftsman, will depend on his interest in his job. Interest is always increased by knowledge. The manufacturer can co-

D. Knickerbacker Boyd, Architectural Adviser and Structural Standardist and well known thruout the construction industry, has made the following significant statement:

"At last will come the day when the manufacturers and producers will recognize the fact that if men cannot be had to assemble, apply, lay, or otherwise utilize their product, they must inevitably suffer the consequences thru curtailed production or in providing storage space and carrying charges for immovable stock."

operate with the worker by furnishing knowledge as to the production of clay materials.

Aside from these qualifications of the bricklayer the manufacturer of clay building products is interested in the number of bricklayers available to the building industry. And this angle of the problem is the most important one after all. Within the last decade the number of bricklayers in the country has decreased 23.6 per cent., which naturally means that practically one-fourth less brick or tile could be consumed now than could have been used in 1912. Actual production figures show that the production of common brick from the years 1912 to 1920

dropped nearly one-half. In 1912 the number of common brick produced was 8,555,000,000 while in 1920 the figure was 4,709,000,000. This does not mean, of course, that there were fewer brick sold in 1920 because there were not bricklayers enough to lay them, but it is a fact that, if the advertising now being done by the clay products' associations would create a demand similar to that experienced in 1912 our present number of bricklayers would be entirely inadequate to handle it.

Clay Products Use Increasing

This brings us to another angle. The building trend, especially in home building, is slowly but inevitably leaning towards

Men in Building Trades in United States in 1920, Grouped by Age Periods.

Artisan	17-19	20-24	25-44	45-64	Over	Unknown	Total
Carpenters	16,541	59,178	412,626	332,064	65,436	1,363	887,208
Painters, glaziers & varnishers (Building)....	4,377	16,053	126,288	86,972	14,298	306	248,394
Electricians	13,818	47,579	127,309	22,883	1,114	242	212,945
Plumbers and gas and steam fitters	6,894	30,638	124,078	42,213	2,654	240	206,715
Brick and stone masons	1,352	7,760	62,707	49,252	10,024	162	131,257
Tinsmiths and sheet metal workers	2,378	8,535	37,675	18,140	2,904	93	69,725
Plasterers	367	2,259	19,630	13,393	2,517	83	38,249
Stone cutters	305	1,340	10,911	8,319	1,201	20	22,096
Structural iron workers	394	2,269	12,151	3,842	154	26	18,836
Paper hangers	268	1,058	9,398	6,618	970	26	18,338
Roofers and slaters	295	1,163	6,253	3,236	417	14	11,378
Cement finishers	63	405	4,553	2,411	171	18	7,621
Coppersmiths	212	755	2,853	1,271	136	5	5,232
Total	47,264	178,990	956,432	590,614	102,096	2,598	1,877,994

clay products and permanent construction. Due to the reduced ratio of cost between a frame and a brick or tile home and the lessened insurance premiums on both building and contents, the public is coming more and more to appreciate the advantages of this type of construction and the consumption of clay products is becoming greater and greater.

To take care of this increased demand there must be more bricklayers and bricklayers of a quality which will insure good workmanship. This problem is the brick manufacturers' problem as much as, if not more than, that of any of the branches of the construction industry, and it is of vital importance that he interest himself in the question of the bricklayer. There are several things which it is necessary to do. First, the young man must be interested in the possibilities and opportunities afforded by the bricklayer trade. Second, the trade and the way to enter it must be made inviting so that young men will be attracted to it and become interested. Third, ways and means must be found so that the way from novice to journeyman is made as short and as attractive as possible, consistent with efficiency and the maintaining of our high standards. Fourth, journeymen must, thru informative agencies furnished by the manufacturers become better acquainted with methods of production of the materials which they are constantly handling, become better informed as to the characteristics of cement, lime and sands, be able to "read" plans and understand drawings, and made altogether more interested participants in the completion of the finished structure. It requires only human contact and closer cooperation between manufacturer and worker to bring about most desirable results in this direction, as has already been started in Philadelphia.

Bricklayers' Earnings Not Very Great

Work in the bricklayer trade is no harder than in a hundred others and is as well paid as practically any other trade where

an hourly rate prevails. Still there must be something about the trade which causes men to shy away from it and to seek occupation in other fields of endeavor. Very evidently then, we must find out why it is that young men do not seek to enter the trade of bricklaying and if possible, to remedy the conditions.

The reasons which have been advanced are many and varied and tho individually they probably would not constitute a considerable barrier, collectively they are sufficient to cause a constant depletion of the ranks of bricklayers. The bane of all building trades, and particularly of the masons, is the seasonal character of the work. The bricklayer figures his wages by the amount of money he can earn in a year, counting days off due to bad weather, idleness, strikes, and so forth. If this total working time is but one-half to two-thirds of the possible working days and his average earnings are about \$1,500 per year that is not sufficient to attract anyone to the trade no matter what the hourly rate may be.

Obviously, the first answer to the question, "How can we attract more men to the bricklayer trade?" is, "By making it possible for a member to earn a larger amount of money during the year." This is one of the fundamental problems with which the construction industry must grapple. The Structural Service Bureau, Philadelphia, developed this fact several years ago and at the New York meeting of the Common Brick Manufacturers' Association, D. Knickerbacker Boyd, as consulting architect to that organization, delivered an address on the subject which was followed by a discussion on the part of bricklayers as well as manufacturers. Secretary of Commerce Hoover has also called attention to it frequently and various suggestions have been made to distribute construction work more evenly over the entire year as much as possible. This problem, however, is one which the entire construction industry, thru the newly organized American Construction Council, will have to work out and will not be solved in a year or two years, but will come gradually as industry is put on a more scientific basis.

Supply More Masons

We must, therefore, turn our attention to other means which will immediately help to relieve the shortage in the bricklayer trade. The simplest way to remedy the shortage is to supply more masons. To supply more men, new men will have to be trained and here is a real field of endeavor where definite and immediate results can be obtained.

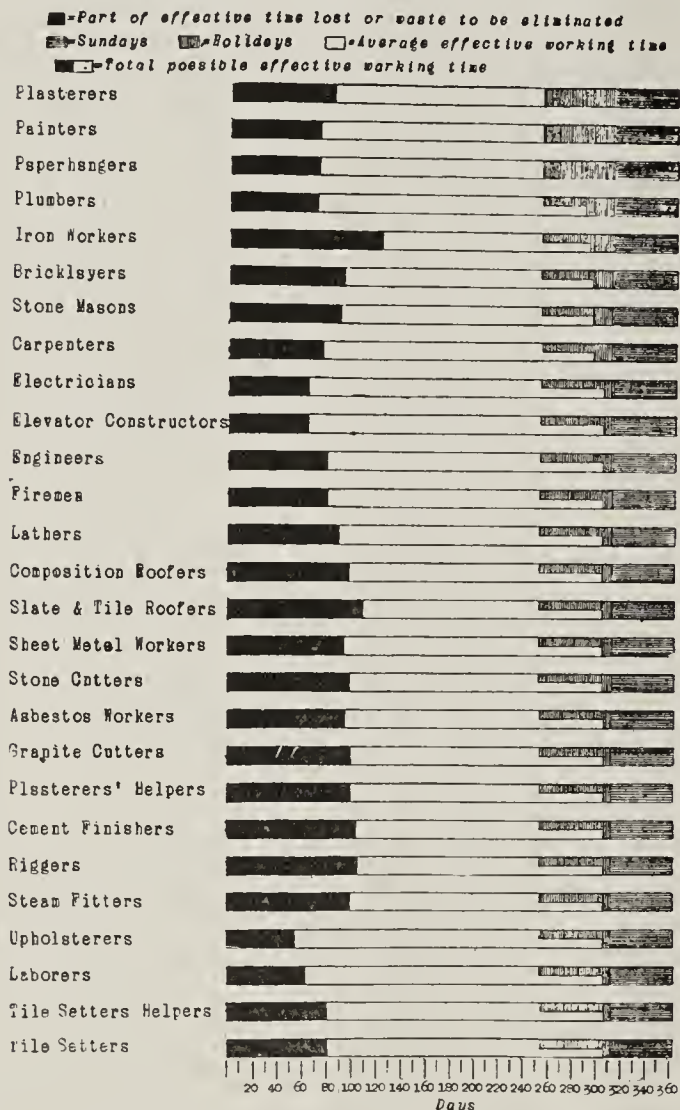
We are living in an advanced age. Everything has been speeded up. Men are living their lives faster and accomplishing more in less time. Industry has been speeded up tremendously and no one has any place for the plodder, the man who "eventually" gets there if you give him time enough. The young man of our day is imbued with this spirit and has not the patience of his father and grandfather. Apprentices in the building trades are required to serve four years before they become journeymen and entitled to journeymen's pay. Here is one of the stumbling blocks in the way of the young man who would become a bricklayer. Ways should be devised whereby this time can be cut down, say two years, turning out just as efficient a product as before. This would be desirable from a good many points of view. The job of the apprentice is not especially pleasant or attractive, he does odds and ends of work, runs errands, is water boy, and so forth, and as a rule he is paid very little. The reason for that is that his employer usually regards him as more of a liability than an asset and most contractors do not particularly care to have an apprentice on the job. Is it any wonder under these conditions that young men do not find the trade of the bricklayer particularly desirable.

Teach Bricklaying in Public Schools

Now, why can we not take young men and boys in public schools and high schools and teach them first about the geology of clay, its interesting manufacture into brick, hollow ware,

tiles and so forth, the fundamentals of the chemical reactions or mortar ingredients, and so forth, and then the trade if they are desirous of learning it? Modern high schools are fitted out with machine shops, foundry rooms, manual training facilities and other opportunities for the pupils and it would be a very simple as well as inexpensive matter to establish facilities where the boys could learn the trade of laying brick and tile under actual working conditions. The brick manufacturer in cooperation with the school authorities could make such classes a reality

COMPARISON BETWEEN EFFECTIVE WORKING DAYS PER YEAR AND ALL OTHER DAYS IN BUILDING TRADES



An Interesting Chart Showing Length of Working Time in Building Trades.—Courtesy of the Constructor.

with little work or expense. The clay products associations, it is suggested, should prepare and issue thru the schools pamphlets briefly and interestingly pointing out the attractive features of the bricklayers and the tile setter's art.

Boys could be given two years of instruction in bricklaying while pursuing their other necessary studies, being given credit for this work when they graduate and proceed to practice what they have learned. Thus the period which they would be obliged to serve as apprentices would be shortened perhaps two years with, in all probability, no lowering in the efficiency of the finished journeyman.

Establish Evening Schools

Teaching the art of bricklaying in schools is by no means a new idea. There are many cities which have established trade schools where a boy may learn to lay brick or become a mechanic in other building trades. The point is every city should have facilities for those who desire it to learn bricklaying and every school should be provided with appropriate literature for vocational guidance into the building trades, to attract more boys away from clerical pursuits and other "white collar" jobs.

Another way in which bricklayers and other building mechanics could be trained is by the establishing of evening trade schools for men and boys of all ages. This plan has recently been adopted in Chicago by the Citizens' Committee to Enforce the Landis Award. A class in plumbing has been established and capable instructors have been engaged to teach each of the 13 building trades. A special feature of this school is that instructors will cooperate with journeymen and visit them at their work and so be in position to remedy any defects in the instruction which follows.

Instruction Could be Practical

Training of bricklayers in schools should be a very simple matter under competent instructors. Men can be trained to become proficient in the art of laying brick and tile very much easier than they can learn other building trades because there is very little "theory" connected with that trade and instruction must naturally be practical. The pupils are working with the actual material and under practically the same conditions as obtain in actual practice. For instance, while in school pupils build brick and tile walls of regular standard brick and tile and mortar; the principles thus learned can be applied in actual practice later on. Thus a man who has learned the bricklaying trade in school should be able, with very little more training on actual construction work, to become a capable mechanic.

Some One Must Lay the Brick Manufactured

In only a few instances have clay product manufacturers evinced any concern over the bricklayer situation and the serious consequences of an inadequate supply of masons. Clay manufacturers are now spending large sums of money to increase the use of their products; they are modernizing their plants and reducing their costs that the cost of brick and tile structures may be less, but they are overlooking one of the most important considerations—someone must lay these added quantities of brick and tile. Of what use is it to manufacture brick if there is no one to lay them? There are now 23.6 per cent. fewer bricklayers in this country than there were ten years ago. Is there any reason to suppose that the number of bricklayers will not continue to decrease unless something is done? In view of these considerations it is evident that no one can be more vitally concerned over the bricklayer problem than the manufacturer of clay building materials.

The whole situation from the clay product manufacturer's viewpoint resolves itself into this: If more brick and tile are going to be sold in the future more bricklayers must be provided to put them into the buildings. Who will be the leader?

✻ ✻ ✻

MAGNESITE PRODUCTION DROPS 50 PER CENT.

Reports received by the United States Geological Survey, Department of the Interior, from producers of magnesite show that the quantity of crude magnesite sold or treated during the calendar year 1921, was 47,904 short tons, valued at the mines at \$510,177. This quantity was less than half that for the year 1920, and smaller than that for any year since 1916. California was the only producing state, and nearly all the product was calcined for use as plastic material. The output of domestic magnesite for use in refractory products was very small.

In contrast to the large decrease in domestic production there was an increase in imports, which consisted chiefly of crude magnesite. The apparent consumption of magnesite in the United States in 1921, was equivalent to about 113,500 short tons of crude magnesite, 58 per cent. of which was imported. This consumption is the lowest recorded for many years, probably largely because of conditions in the metallurgic industries, which consume, in the form of refractory material, most of the magnesite used.

Business Briefs and Trend

GENERAL BUSINESS SITUATION

Despite the halting effects of coal and rail strikes, general business keeps up at a large volume after allowance for the usual seasonal changes. There is fear, however, that the prolongation of strikes will turn back business revival.

The output of bituminous coal especially from non-union mines has been disappointing. Iron and steel plants are shutting down thru lack of sufficient coal and coke. Some clay plants are closing. Prices of iron and steel supplies and other commodities as well, are increasing due to the increased cost of production.

Car loadings in the middle of July reached the highest level of the year, allowing for the reduced movement of coal. Loadings were highest on record except for a short period in the fall of 1920.

Commercial lines are increasing for the first time in more than a year and the Federal Reserve Cash Ratio recently reached a figure of 79.2, the highest point since 1917.

The height of the black area in the diagram shows how the cost of living, as computed by the National Industrial Conference Board, has varied since 1914. The other curves show the variations in the component elements. Clothing went highest, with food second. "Shelter," which means house rent, reached its peak after clothing and food were well on the way down.

The following table shows the relative importance of the various elements in the family budget, and also the high and low figures and the most recent figures.—Index, July 29, 1922.

Costs in Per Cent. of July, 1914 Figures

Relative Importance in Family Budget	Highest Figures	Lowest Recent Figures	June 1922
Food .....43.1	July 1920-219	March 1922-139	141
Shelter .....17.7	June 1929-171	March 1922-165	165
Clothing .....13.2	April 1920-188	June 1922-153	153
(Fuel) .....(3.7)			
(Light) .....(1.9)			
Fuel & Light 5.6	November 1920-200	June 1922-174	174
Sundries .....20.4	November 1929-192	March 1922-174	174
TOTAL .....189.0	July 1929-204.5	March 1922-154.7	155.4

COST OF LIVING NO LONGER DECREASING

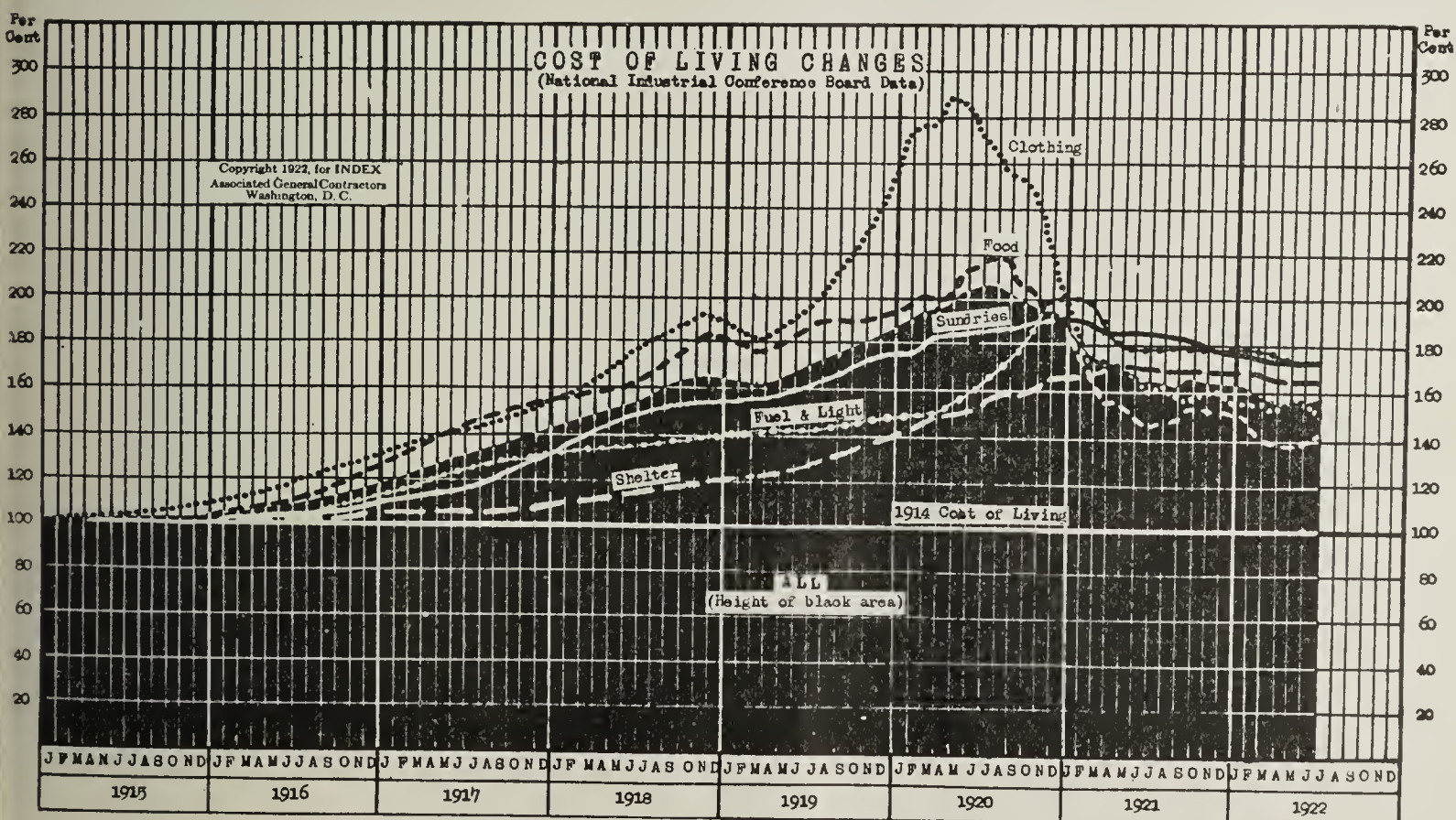
According to the National Industrial Conference Board the cost of living in the United States increased seven-tenths of one per cent. from March to June, 1922, while the computations of the United States Bureau of Labor Statistics show for the same period a reduction of three-tenths of one per cent.; both referred to a 1914 base. Both sets of figures show that the unbroken and relatively rapid decrease from the high figures of the middle of 1920 has gone to an end for the present. The up-turn in wholesale prices came six months ago and it is in accordance with previous experience that the corresponding change in retail prices and the cost of living should lag behind for an appreciable period.

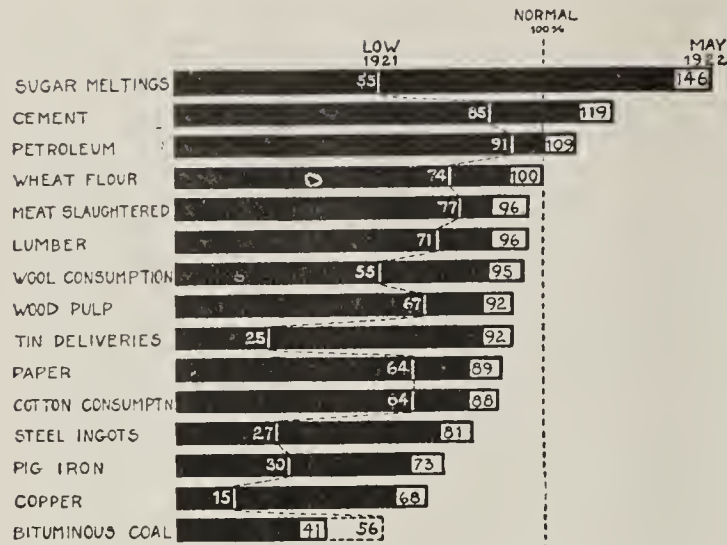
COMMON BRICK PRODUCTION INCREASES

Encouraging developments in the common brick branch of the brick and clay working industry are indicated in the report of the Common Brick Manufacturers Association of America, relative to the effects of the coal and rail tieups.

Altho difficulty is experienced by the members of the national body in their effort to obtain fuel, the production of common brick for the country at large shows an increase during July over that of June, according to reports from 95 plants. Production was better than 106,000,000, while shipments were more than 115,000,000 brick.

One factor that may have stimulated the demand, aside from the increased building activity in practically all parts of





Production of Basic Commodities in May, 1922, and the Low Point in 1921 Compared with Normal Production. In Cases in Which May Production Figures Are Not Available April Figures Are Shown. Figures Compiled by Federal Reserve Bank, New York and Printed in the Industrial Digest.

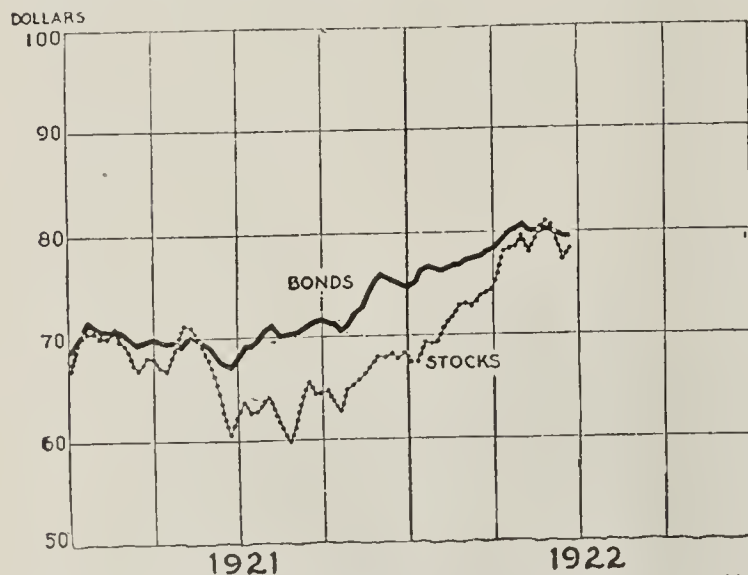
the country, the report shows, is the steady position of cost to the consumer, in spite of increased cost to the producer. For, while many manufacturers have contracted for fuel to be delivered at plants at an average of \$5.25 a ton, to accept fuel in the open market they are required to pay as much as \$10.50, delivered at the plant, which immediately increases the cost of production from \$2.50 to \$4.00 per M., according to the processes used.

In the face of these conditions, the majority of manufacturers view the immediate future optimistically.

* * *

WOULD YOU START A BUSINESS NOW?

It is easy to be sagacious in boom times. A large part of American business psychology consists in being anxious to invest when securities are high and to get panicky and wish to sell when values are low. The American is a poor gambler on his country's future—he is apparently disinclined to play long on America during and immediately following depression.



Average Weekly Prices of 40 Bonds and 50 Stocks on the New York Stock Exchange. Figures Compiled by Federal Reserve Bank, New York, and Printed in the Industrial Digest.

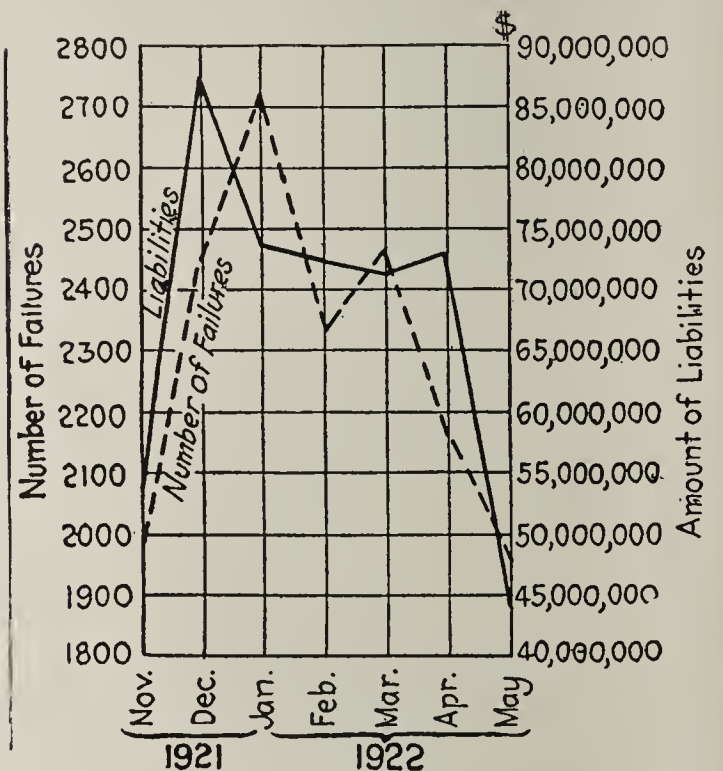
A casual study of the much-discussed business cycles reveals the basic similarity of all economic movements thru boom times with high prices, low interest rates and inflation, thru deflation with falling prices and heavy capital charges, to readjustment with low production costs and low money rates.

Obviously the best time to begin a new enterprise is at that

stage of the cycle immediately following the depression—that stage, in other words, which witnesses the first signs of returning health, such as steadying prices, higher bond values and increasing production. The casual study of cycles referred to makes it possible to carry out the maxim: Buy low and sell high. There is neither magic, luck nor a sixth sense in being able to play with the cycles.

The charts on this page reveal the present trend of the cycle as being definitely on the upward path to prosperity. Continued higher security values and continued decrease in the number and liabilities of failures are not unrelated accidents. Making full allowance for the "prosperity talk," and fully discounting future hopes, the fact remains that investments are surer of increasing yields and that the chances of business fatality have been considerably lessened.

The answer to the question, is this a good time to start a



Number of Commercial Failures and Amount of Liabilities by months.—Compiled by Iron Age and Published in Industrial Digest.

business?, becomes almost self-evident. A moment's reflection brings the fact to mind that in spite of the rosy prospects in boom times prices must come down and large profits yield to stringency. The enterprise begun in boom times is soon likely to find itself saddled with inventories, stocks bought at high prices, markdowns and heavy capital charges—a combination of bogies that is liable to spell ruin. Unless all past economic signs fail this is an opportune time to launch an enterprise, always assuming, of course, a sound understanding of one's business and a freedom from "get rich quick" psychology.—Industrial Digest.

* * *

STRIKERS LOSE \$5,000,000 DAILY

"A statistician of the National Industrial Conference Board has computed that American workingmen now on strike are losing something like \$5,000,000 a day in wages," says the Industrial Digest. "The loss to other workmen, not strikers, who have been thrown out of their jobs because of the strike, is probably just as large, but no data is at hand from which to compute it.

"About 1,250,000 men are now out on strike. Assuming an eight-hour day, these 1,250,000 strikers represent a loss of labor amounting to 10,000,000 man-hours every day. It would take 100 men, working continuously for 300 days a year, five years to offset a single day's loss at this rate."

UNITED STATES FIRE LOSS IS \$3 PER CAPITA

Fire losses in the United States in 1921 were more than half a billion dollars.

Fire loss adjustments made by insurance companies in the United States and Canada during the past 14 years amounted to \$3,410,752,600. The average yearly loss was \$243,625,200. The loss for 1920 was \$330,853,925.

Losses from fire in the United States average \$3 per capita per year. France has a per capita loss of 49 cents; Great Britain, 33 cents; Germany, 28 cents, and Holland, 11 cents.

During the past 14-year period our fire losses were 28.1 per cent. of the value of new building construction. In 1920, altho an abnormal amount of building was done, the fire losses were 23.5 per cent. of the value of new buildings.

Startling as these losses are, they do not tell the whole story. They represent only the actual insurance adjustments made. They do not take into account losses due to the fact that buildings are seldom insured for more than 80 per cent. of their full value, nor do they include losses not covered by insurance. The insurance adjustments made

probably do not exceed 70 per cent. of actual fire losses, including both insured and uninsured.

The surest safeguard against loss by fire is a building so constructed it cannot burn.—Portland Cement Association.

**CLAY MINERS GIVE CLAM BAKE**

The Clay Miners' and Manufacturers' Association, Perth Amboy, N. J., a representative Middlesex County organization, gave an old fashioned clam bake at Pfeiffer's Farm, located between Metuchen and Fords, on Saturday, July 29. The affair was a big success and a large representation of members and guests were present. The "assessment was \$5.00 per head," and those who were so fortunate as to be there said that it was well worth the toll. The meal was delightful, and was carried thru in regular "clam bake" fashion that left nothing to be desired. Business, of course, was forgotten for the day, and following the repast, called for 1 p. m., there was a good round of fellowship to make one want to linger. Great credit is due to the committee in charge, which was headed by F. A. Whitaker, General Ceramics Co., Keasbey, ably seconded by F. F. Anness, Anness & Potter Fire Clay Co., and R. L. Clare, Federal Terra Cotta Co.



The Building Situation

ALL PARTS OF NEW ENGLAND show increasing activity in building construction. With the value of June permits in Boston of over \$4,000,000, July has exceeded this record, and August has opened up in a way that indicates still higher figures during this month. The first six months of the present year have rounded out a total of \$73,775,000 for construction in Massachusetts, an increase of about 129 per cent. over the corresponding period of a year ago. The last half-year is expected to show an equal, if not greater, volume of building.

Connecticut cities are progressing substantially in the line of new construction, with industrial work becoming a more important factor in the situation. The weekly average from the principal districts is running from \$600,000 to \$800,000, or more than 100 per cent. in excess of the totals at these same places in the same period in 1921.

New York Shows Gain

New York continues to show a substantial increase in construction operations; during the last week of July, no less than 250 projects were announced, covering work of all kinds in Manhattan, Brooklyn and Bronx boroughs, with plans either in course of preparation or ready for estimates. In Brooklyn, alone, building permit valuations are now reaching a total of close to \$2,500,000 weekly. At the present time, the immediate work in sight represents a cost of over \$11,500,000, with commercial structures now gradually coming to the front.

Queensborough, New York, is achieving new construction records. The first six months of the year have produced a total of 10,523 building operations, with dwellings and apartments easily in the lead, representing a total valuation of \$67,829,600. This compares with 5,736 operations in the same time of a year ago, with work aggregating \$31,380,845 in value. There is more work at the present time than local builders and contractors comfortably can handle.

Keen Activity in New Jersey

The shore resorts in New Jersey are coming into their own, and with Atlantic City well in the lead, Asbury Park, Long Branch and other cities to the north are making notable strides

in construction work, covering hotels, dwellings, theaters and commercial structures. One project alone at Atlantic City, a brick and steel addition to the Hotel Chelsea, will involve about \$3,000,000.

With the greatest building movement in the history of Newark and vicinity now under way, there is a growing shortage of skilled and common labor in this section, and the situation is becoming a matter of much concern. The scarcity, in order of volume, covers plasterers, terrazzo workers, tile setters, marble cutters and setters, metallic lathers, bricklayers, painters, steam-fitters and mosaic workers.

Large Building in Philadelphia

Philadelphia is maintaining heavy operations in all branches of the construction industry. Building permits are averaging from \$3,000,000 to \$4,000,000 in valuation weekly, and the advance work in sight assures the continuance at this status for some time to come. The month of July, just closed, is expected to show a total volume of construction in excess of \$13,000,000.

With the heavy call for brick at Philadelphia, there is a temporary shortage of salmon stocks and cheaper varieties at the local yards. Prices, accordingly have advanced, with present quotations as follows: Salmon, \$14 per thousand, delivered; rough, hard brick, \$18; stretcher brick, \$21 to \$23, delivered.

School construction in Pennsylvania has reached a high point of activity. The State Department of Public Instruction, Harrisburg, reports that plans for 502 operations have been submitted for approval, involving a total expenditure of \$20,000,000.

The first 20 days in July in Philadelphia produced more than seven million dollars of building permits. The exact figure was \$7,023,630, of which \$1,324,700 was in the last five days of that period. The operations for the 20 days amounted to a total of 1,266, and for the last five, 384.

Two-story brick houses continue to be the leading class of work undertaken, permits having been granted for 137 operations to cost \$653,000 between July 14 and 20. They make the July total 440 operations, costing \$2,049,765.

(Continued on page 202)

SECTION ONE

Owning the Home has a Powerful Mental and Moral effect upon every member of the family.

It re-establishes in the daily life the conditions and influences that awaken the best impulses, develop and reinforce the will power and build character. It creates morale.



"His Castle" Home Owning Breeds Real Men

It begets self-respect, independence of spirit, and self-reliance.

It develops initiative and sets people in motion.

It awakens honest pride, establishes higher ideals, and raises the standards of living.

It confers responsibility and develops persistency and dependability.

It is the greatest of all steady-ing influences, especially for young people.

It makes for good citizenship.

It is what puts the MAN back in MANHOOD.

It gives back to a man the independence and control over his own personal and family life that are his fundamental right and his most instinctive need. Without these a completely self-reliant and dominant manhood cannot thrive.

Man was intended to be a dominant, independent being. Every detail of his affairs that he relinquishes to others, means that much less independence and dominance, that much less of mental, moral and physical strength.

It matters not that in the world of business ninety-five per cent of all men are employees and take orders from the other five per cent. That is but an expedient of modern business and is a mere detail of living.

It is quite another thing to let this dependence on others' initiative extend into your private life. To turn over to others the control of the place that is the center of your whole personal and family life is not good for your manhood.

Besides making you secondary and lessening your self-respect and your confidence in your own abilities, it saps your strength and resourcefulness, through their being allowed to fall into disuse.

If you are not independent, you are dependent.

You are either your own man or you are some one else's man.

You are certainly not your own man if there is in the whole world no place where you can keep your family and rear your children under conditions and influences of your own making.

The act of putting your own roof over your head gives you back the independence you need. It gives you freedom from the fear and uncertainty you cannot escape at times when you depend on others.

It proves your ability and gives you confidence in yourself. It gives you the courage and self-reliance to strike out boldly and exact your full rights from the world, without fear or favor. It gives the spirit that wins through sheer positiveness and refusal to consider defeat.

It makes you a Self Starter—A Go Getter—A Dominant Doer.

Folsom and His Remarkable Book

Volume Entitled "A Home of Your Own and What It Means to You" Is Unanswerable Argument for Subject Under Discussion—Should Be Backed by Every Civic and Commercial Organization

TO BLAZE A NEW TRAIL, set a new precedent, or do anything better than anyone else has ever done it before, is an achievement that deserves more than mere passing attention. So says Building Supply News of August 1 and continues:

But when in addition a practical thinker has suddenly achieved a new idea, in a field that has for years been worked and cultivated to the limit, and who at the same time points the way to vast and untilled territory just beside it which has long gone overlooked, and ignored, not only the discovery, but the man himself, is well worth the attention and consideration of those who may properly expect to benefit the most directly from his contribution to the welfare of their business.

Such a man is M. W. Folsom, who has brought out new and unusual ideas in the remarkable volume entitled "A Home of Your Own and What It Means to You" just published within the last 90 days and which has already been recognized and endorsed as the most extraordinary and telling book of its kind ever written for the construction industry.

M. W. Folsom has had years of experience in the real estate field in various sections of the country. He believes that the real estate men have not struck the keynote in home selling appeal and has prepared his book with the view of making it possible to convert everyone to the value of home owning, of which he himself is a strong enthusiast.

This little book is a wonder, at once a perfect, unanswerable and absolutely irresistible argument for the subject under discussion, while its original make-up and beautiful, yet effective illustrations representing the very finest kind of color reproduction and super draftsmanship, combine to achieve a work of tremendous practical value and timeliness.

Should Have a Million Readers at Once

It is a book that should circulate by the million, and every member of the construction industry, whether dealer, builder,



M. W. FOLSOM.

engineer, architect, realtor, manufacturer, or producer, should lend his help and influence to the end that its message and gospel of "A Home of Your Own" shall reach and win every family now living under rented roofs, the country over.

It is at once a super sales book, a complete and up-to-the-minute handbook for every true American home, and a veritable Bible of fact and reason for the basic and supreme goal of the Construction Industry.

In the estimation of the editor of Building Supply News, this little volume of 32 octavo pages is a stroke of practical genius and intelligent sincerity that amounts to a revelation, not only for the business world but for the whole of society and civilization in this first quarter of the twentieth century.

Book Full of "Meat"

Altho it contains but 32 pages, and even less reading matter than that, because it is profusely illustrated—it is almost impossible to give any adequate idea of Mr. Folsom's little book "A Home of Your Own," in anything like a brief or ordinary editorial review.

Perhaps the best way to tell you what is in it is by reproducing as has been done herewith, a single page from its meaty contents. This page is the first of two which presents in compact and irresistible fashion the initial one of the ten conclusive and inclusive arguments for the self-owned home.

These ten arguments, graphically set forth on the page just preceding the one reproduced herewith, pack into the most telling group of phrases ever invented, the whole philosophy of the subject.

They are so perfect a statement and in such a tabloid form, they hardly take a stick full of ordinary type.

The Ten Reasons "Why"

"A Home of Your Own" declares the author in this introductory word, "is the most valuable of all material possessions. It has greater influence over life and character and greater effect upon success and happiness than any other single thing that can be bought with money."

The ten reasons why this is so, are:

"It has an important mental and moral effect on every member of the family."

"It is the greatest of all aids to success."

"It increases a man's working efficiency and earning power."

"It makes woman's work pleasanter and her life happier."

"It is necessary for the welfare of the child."

"It adds many of the finer things to life."

"It reduces the cost of living."

"It makes available additional sources of income."

"It is the safest and most profitable family investment."

"It is the best form of family protection."

Following this introduction, every one of these clear cut and unanswerable reasons are elaborated with irresistible logic, and illustrated in such clever and appropriate fashion as to make its presentation at once more delightful and thrilling than the most dramatic best-seller in the book stalls of the day.

Every Organization Should Back This Book

The volume concludes with pages devoted to brief and clinching arguments entitled "Your Great Decision," "Realization," "The Responsibility of a Home," "Striving for a Home at a Sacrifice," "Taking and Testing Outside Advice," and "A Final Word."

Every Chamber of Commerce, every Commercial Club, every Rotary, every Kiwanis, every Lions', every Optimists' and every other similar organization should lend a hand. The Women's Clubs should join in the movement, churches, and school boards, banks, and building loan societies, Sunday schools and Fraternal orders should take up the crusade until the attention of every family in America, that does not as yet live in and own its own home, shall be focused upon this tremendous fact and convinced thru this little volume that they need wait no longer to start upon the way toward domestic independence,—the one way and only life insurance policy of American institutions.

This book is sold for one dollar and may be had by applying to Irving B. Hiett, National Association of Real Estate Boards, Toledo, Ohio.



PROVIDES MONEY FOR 1,284 HOMES

At a luncheon given to the Chicago press on July 27, Hiram S. Cody, of the Chicago Trust Co., announced that \$5,470,650 from the Metropolitan Life Insurance Co.'s fund for housing had been loaned in the Chicago territory. This amount covers a total of 1,284 loans of which 1,008 were on dwellings and 276 on apartments. The buildings constructed with the aid of this money provide housing ac-

commodations for 1,523 families. Thruout the United States the Metropolitan has loaned money thru the agency of 250 banks, trust companies and incorporated realtors, on 6,989 single dwellings and 869 apartment buildings, housing 23,190 families. The total amount of money involved in these loans is \$84,360,207.

Mr. Cody has just recently announced that the Metropolitan Life Insurance Co. will now accept loans on houses and apartment buildings up to 12 years old. This means that the Chicago Trust Co. is in a position to handle maturing loans on the economical 3 to 15-year Metropolitan loan plan, as well as loans on new houses.



INCREASE IN TILE RATES SUSPENDED

By an order entered July 28 the Interstate Commerce Commission suspended from August 1 until November 29, an increase in rate from \$1.77 per net ton to \$2.02 per net ton on hollow building tile and other related clay products in carloads, from Brazil, Ind., and points taking the same rates to Chicago. The increased rate is contained in Supplement No. 4 to Pennsylvania Railroad Company tariff I. C. C. No. F-1344 (Lines, Pittsburgh, Oil City, Erie and West).



Refractories Accountants Discuss Industry's Problems

THE REFRACTORIES ACCOUNTANTS' INSTITUTE, composed of men in charge of, or engaged in, accounting for members of the Refractories Manufacturers' Association, met at the Statler Hotel, Buffalo, N. Y., Monday and Tuesday, July 24 and 25, 1922.

An important feature of the meeting was an address by Lane Stephens, manager of Percival G. Bixby & Co., and in the discussion that ensued the members forgot their desire to spend the afternoon at Crystal Beach on the other side of the lake.

The topics discussed in this connection were the budgeting of sales, the inclusion or exclusion of interest as a factor in cost, but most of all the question of valuing inventories. This discussion centered around the proposal of a prominent manufacture, not in the brick business, however, that in the valuation of inventories at the close of the year only the direct labor and materials used in the manufacture of a commodity should be taken into consideration; and that salaries, insurance, taxes and all other items of expense which are not dependent upon the quantity of material produced should be excluded from cost in arriving at inventory values. There is no immediate indication that the Institute will become a convert to the idea.

Valuable Papers Were Presented

Other papers presented and discussed were:

"The Distribution of Overhead," by W. J. Westphalen, of Laclede-Christy Clay Products Co., St. Louis, Mo., in which he presented the question of burden at standard normal rates, so that a period of low output will be burdened no heavier than one of maximum output, and such that when the output exceeds the standard set it will automatically create a reserve for absorbing overhead in the inevitable cycle of lower production. This is the first of a series of reports he will present on this subject.

"Accounting for Breakage," by F. S. Dunlap, of Standard

Refractories Company, Claysburg, Pa., reviewing an article published in Brick and Clay Record last March; the method consists in selling the product by each department to the next succeeding at a standard price which will cover the operating cost of that department in case the standards are met; and which will reveal either waste or economy in that particular department irrespective of what takes place in any other, thus fixing responsibility for the elimination of waste due to breakage.

"Raw Material Labor Costs" were explained by F. W. Neuroth, Joseph Soisson Fire Brick Co., Connellsville, Pa. "Factory Labor Costs," was the subject discussed by R. E. Byrne, Ashland (Ky.) Fire Brick Co.

G. W. Greenwood Elected Chairman

Divergence charts relating to the refractories industry, were prepared by E. F. DuBrul, Pyro Clay Products Co., Oak Hill, Ohio, strikingly showing, by the use of colors, the favorable and the unfavorable economic conditions, based on a plan outlined in Management Engineering for July, 1922, regarding the use of divergence charts.

How the Institute has served, and how it is planning to serve, the industry, was told by the chairman, G. W. Greenwood, United Refractories Co., Dunbar, Pa.

The next meeting of the Institute will be at the Drake Hotel, Chicago, Ill., Monday and Tuesday, October 23 and 24, 1922.

The officers and directors of the Institute are: G. W. Greenwood, chairman; C. W. Jordan, secretary-treasurer; W. J. Westphalen, A. Henderson, R. E. Byrne and F. S. Dunlap.

The standing committees are as follows: Overhead, W. J. Westphalen, H. L. Ahrbecker; Depreciation and Obsolescence, M. D. Worthington; Factory Labor Costs, R. E. Byrne, H. L. Grohne; Raw Material Labor Costs, F. W. Neuroth, D. P. Wall and J. M. Dilworth.

Why Burn Soft Brick?

By the Simple Expedient of Opening Floor Flues Where
Brick Are Soft, Changing Setting and Distributing Draft
the Percentage of Hard-Burned Ware Is Increased

By H. L. Longenecker

Manager Cambridge (Md.) Brick & Tile Co.

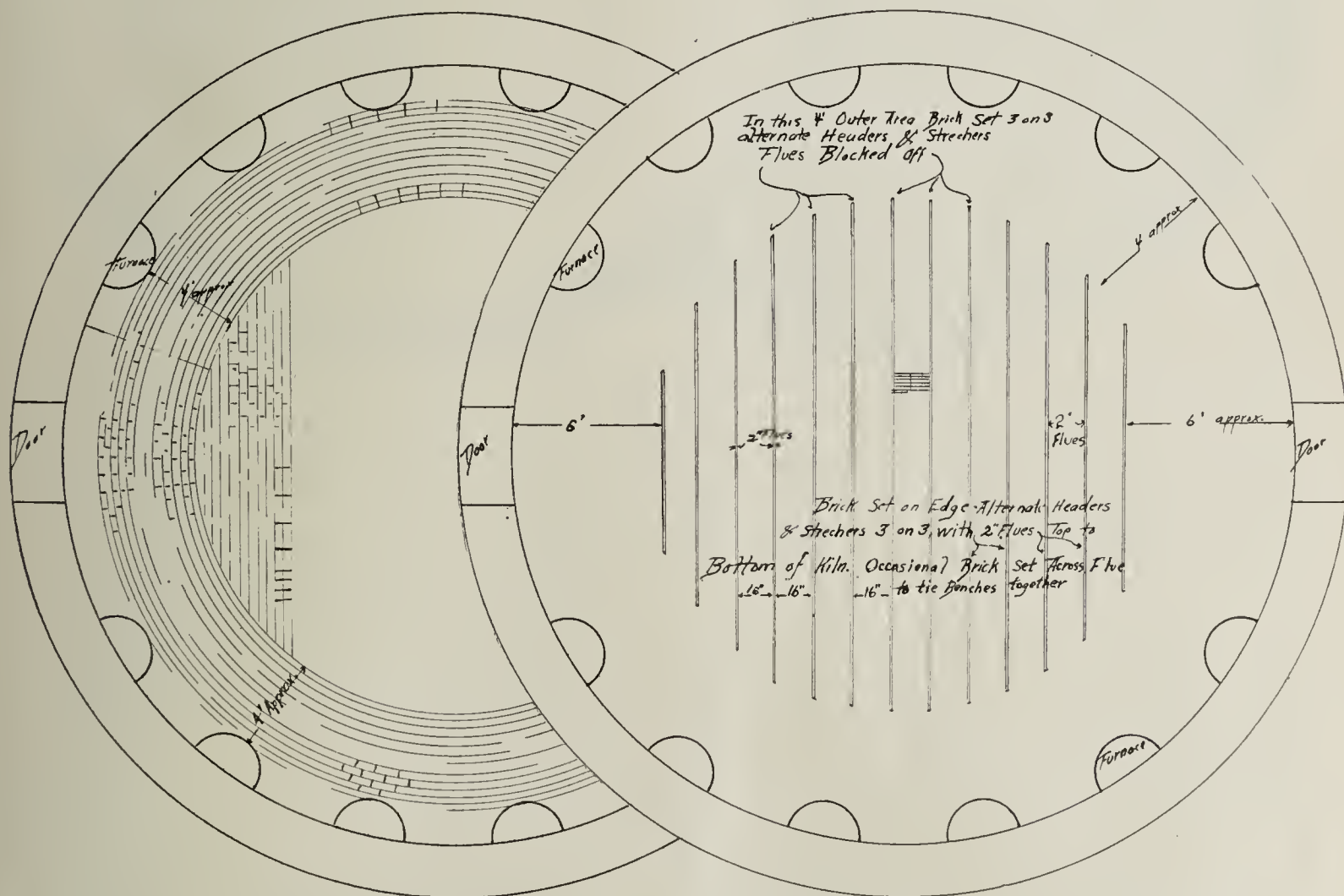
AS AN EXAMPLE of the importance of seemingly little things let me tell you what was told me several years ago in a conversation with the general manager of one of the large paving brick companies. This man told me that as a result of a little experimentation a professor of one of our ceramic colleges had accomplished remarkable savings in fuel with considerable improvements in the quality of the ware of a paving brick plant. It so happened that at the next meeting of the American Ceramic Society I had an opportunity to ask the professor regarding the secret of his miracle working. "Why," he said, "all I did was to notice where the soft brick were, open up the floor flues there and close up the flue openings where the brick were hardest."

Isn't it simple? Almost too simple a thing to write or talk about and yet there are a great many superintendents who do not follow this principle. The reason is that it is considered

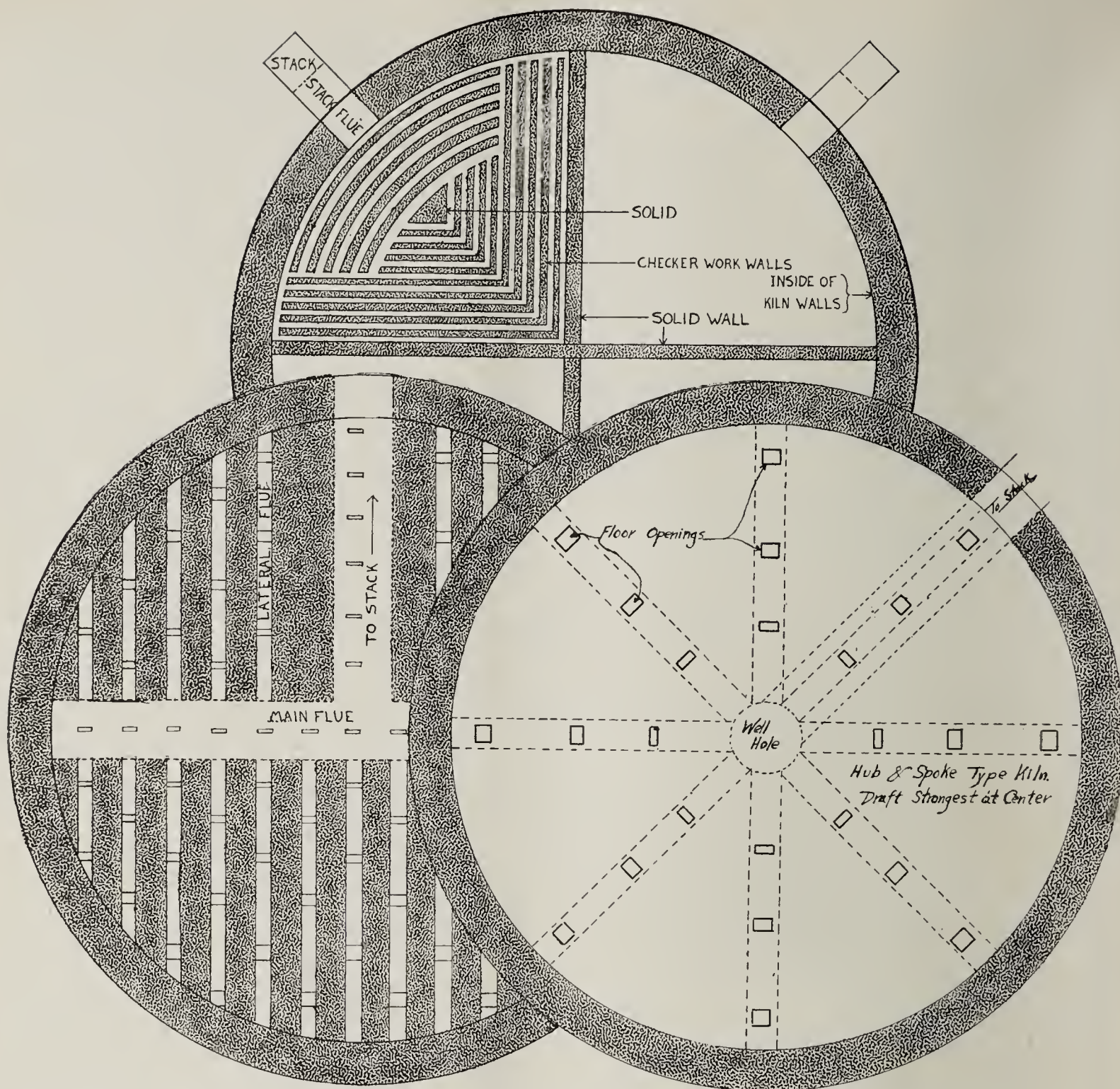
too trivial a detail to engage the attention of the average large plant superintendent. As a rule this part of the burning is given no attention; the burner is too busy with kilns on fire, and would feel that he were loafing if he stopped to watch the unloading or the setting of the kiln. The burner generally displays very little interest in a kiln after it has been burned, and until it has again been set and is ready to fire.

Engage A Kiln Inspector

On any good size plant it is a paying investment to engage an intelligent observer as "Kiln Inspector" who is to take charge of the kilns during that important interval between burns. If he is experienced and resourceful he will soon pay good dividends on his salary. His job would be to see that the kiln flues are kept clean and the furnaces kept in repair. He should cooperate with the burner to find out any peculiarities of the kiln during



Figs. 4 and 5.—Fig. 4 on Left Shows Method of Setting for Hub and Spoke Type Kiln in Successful Use. Outer Rings Set 5 on 2. Inside Set 3 on 3, Alternate Headers and Stretchers. Fig. 5 Shows Method of Setting Hook Patented Kiln. Floor Plan of This Kiln is Shown in Fig. 1.



Figs. 1, 2 and 3.—Fig. 1, at Top, Shows Hook Patented Down-Draft Kiln. One Quarter Developed, Others Similar. The Drawing Shows the Under Floor Flue System. Draft is Strongest at Outer Part of Kiln. Fig. 2 is Floor Plan of T-Flue Type Kiln. The Small Squares Are Openings Thru the Floor for Draft. Fig. 3 is a Hub and Spoke Type Kiln.

the burn preceding. By the simple expedient of noticing where the soft brick are in the kiln and adjusting the floor flue openings to throw more draft and heat to the parts of the kiln where the soft brick indicate that it is needed, he can increase the percentage of No. 1. ware.

The kiln inspector should be capable of supervising the setting to make sure that all the brick in the kiln are set in a sufficient amount of draft. This of course is highly important and every clay man knows that it is easier to burn a piece of clay two inches thicker than a block one foot thick such as can be made by jamming several brick together. One of the cardinal principles of burning in the old up-draft kilns is that the brick must not be set too tight over the arches if the heat is to get

thru them and burn good brick. This same problem confronts us in burning the down draft kiln altho it may not seem so at first thought. In the down-draft kiln the space between the crown and the top of the setting takes the place of the arch in the old fashioned kiln. This space is nothing else than a big combustion chamber and a down-draft kiln is really just the old seave kiln turned upside down. The heat and flame will follow the line of the draft and will go where the brick are set most open, that is, where the draft is best.

Overcoming Uneven Draft

In all down-draft kiln flue systems the draft thru the kiln floor is strongest either at the outside or the center of the kiln.

Mr. Longenecker says, "An intelligent 'Kiln Inspector' can pay a fine dividend on a good salary by taking charge of the kilns during the important interval between burns."

"I have proved to my own satisfaction that a careful study of the kiln floor in relation to setting and burning pays good dividends," says Mr. Longenecker.

There are several ways of overcoming this. It can readily be accomplished by proportioning the size of the floor openings as shown in Figs. 2 and 3. A study of the setting will also usually result in a more even proportioning of the draft. To avoid difficulty with the kiln setting crew, which is usually paid on a task work basis, changes in setting should be made as simple and as easy as possible. Fig. 2 shows a kiln in a T-Flue type floor, which I believe is the best in ordinary use, and is more commonly used, with variations, than any other. In a kiln of this type about all that can be done is to tighten the setting over the main flue and stack flue. The brick between the furnaces in this kiln are generally burned soft. To remedy this open up the setting between the bag-flues and if the general setting is 3 on 3 set these 5 on 2. If this method fails to produce hard brick between the furnaces, arrange the setting with little flues in the brick, thru slot flues or chimneys.

Fig. 3 shows the hub and spoke type of kiln which is also quite frequently used, often having ring flues and lateral flues across the spoke flues. In this kiln the draft is strongest at the flue openings nearest the center and weakest nearest the furnaces. Fig. 4 shows a method of setting this kiln which is being used successfully at several fire brick plants. Four benches of brick are set in a circle around the outer part of the kiln. These brick are generally set more open than the rest of the kiln.

Burning Brick in Hollow Ware Kiln

I am using a patented flue system as shown in Fig. 4. I worried with it for a number of years setting the brick uniformly 3 on 3 and depending upon the flue system to give uniform draft and heat distribution. The result was that except for one or two burns, which were "freaks" as far as regular duplication was concerned, brick in the center of the kiln were burned soft in a sort of pyramid. I opened up the flue in the center with very little improvement, finally it occurred to me that I was burning brick in a kiln primarily designed for burning hollow ware, and the depth of the brick in the center of the kiln was about twice as great as in the outer portions. I conceived the idea of setting my brick to duplicate hollow ware, giving the patented flue system a better chance to function, which opportunity it probably did not have before. The method of setting which was finally adopted was that shown in Fig. 5. Maintaining a solid area around the outer part of the kiln. I set the inner part with two-inch draft slots extending from tip to bottom of the kiln, with an occasional brick set across the flues to keep the kiln from rolling. The result of this change in the setting was that when using a long flame coal I can now burn kilns of 110,000 brick with less than 25 tons of coal to over 95 per cent. good hard red in 96 hours including the water-smoking. By insulating my kiln crowns, I can cut the coal consumption still further.

This experience has proved to my own satisfaction that a careful study of the kiln floor in relation to setting and burning is of the highest importance and repays well the time and effort spent.



CLAY EXHIBITS AT CHICAGO'S PAGEANT OF PROGRESS

Chicago is holding another Pageant of Progress during the interval July 29-August 12 on its mile long Municipal Pier. Exhibits of all kinds are shown, and the entire spectacle resembles a huge State Fair more than any other type of exhibition.

Last year millions of people visited the exposition and preparations were being made to handle even a larger number of persons this year.

Among the exhibitors there are several clay products concerns, including the Northwestern Terra Cotta Co., Chicago Face Brick Association, Thomas Moulding & Co. and the Chicago Brick Exchange.

The exhibit of the Chicago Face Brick Association consisted

of 16 panels of various types of brick representing the buff, gray and red as well as the enameled and salt glazed brick. Ornamental pillars formed the end of the exhibit, each panel approximating five feet by 15 inches in size.

The exhibit of the Thomas Moulding Brick Co. was very unusual and in it was one large panel measuring 9x15 feet, containing a large variety of brick. In fact, 808 different types, sizes, and shades of brick were laid up in this panel with Brixment as the mortar. Besides this exhibit of brick and Brixment a large variety of flooring was shown and also White Atlas Cement.

The Chicago Brick Exchange exhibit which was built last year and which was not torn down was used again and in the center of the exhibit were shown large size miniature houses representing brick homes of various types including bungalows and two-story homes. The shrubbery and trees were well represented and some of the houses supplied with garages. A mansion built of common brick was also illustrated in miniature size, the whole exhibit making a very favorable presentation.

The exhibit of the Northwestern Terra Cotta Co. was unusually beautiful and showed the effects obtainable from both modeling and color. In the center of the exhibit was displayed a panel showing an artistic drawing of the Wrigley Building in large size.

The F. W. Lucke Co. was on the job with samples of paving brick which were shown in a booth of a paving contractor who illustrated the various types of hard surface pavements in cross section.



CANADIANS TO BE A. C. S. HOSTS

This year's tour of the American Ceramic Society promises to be one of the most interesting of any taken in recent years. As announced in a previous issue of Brick and Clay Record the summer meeting program will take delegates from Rochester, N. Y., thru Canada and to the Falls at Buffalo, Montreal, Ottawa, Kingston, Toronto, Hamilton and other cities will be visited along the route. All types of plants will be inspected, including heavy clay products factories, feldspar mills, a glass plant, an enamel plant, electrical porcelain plant, and others.

The party will leave Rochester, N. Y., Sunday, August 13, and go by boat to Montreal, where the real plant visiting trip will begin. The boat trip from Rochester to Montreal is far-famed for its beauty, and is especially interesting thru the St. Lawrence river and its well-known rapids. Many other interesting things are in store for those who can come, such as a real camp dinner, cooked and served by camp cooks, which is to be enjoyed in the Verona wilds.

Reservations should be made with Ross C. Purdy, secretary American Ceramic Society, Lord Hall, Ohio State University, Columbus, Ohio. For any information either Mr. Purdy or Millard F. Gibson, Interlocking Tile Co., Ltd., 32 Toronto St., Toronto, Can., who is chairman of the entertainment committee, should be addressed.



HOUSE ORGAN PROMOTES PRODUCTS

Vitrified clay pipe in Canada has working for it a very live and interesting publication, known as the Pyramid. This is a small booklet of the house organ type and is published by the Vitrified Clay Pipe Publicity Bureau, Toronto, Can. The August, 1922, issue contains interesting information on how vitrified clay pipe is made, describing the various processes of manufacture.

The booklet also calls attention to the Canadian National Exhibition which opens August 26 and continues to September 9. The Clay Products Agency, Ltd., of Toronto, will represent vitrified clay industries and various vitrified clay products will be exhibited.

Does the Trade Want Better Refractories?

Says Purchasing Agent of Consumer Is Stumbling Block in Way of Better Refractories—Discusses Chrome Ore and Chrome Brick

By Raymond E. Griffith

Sales Manager, Lavino Refractories Co., Philadelphia, Pa.

Editor's Note—In order that the readers of this article may know that the remarks therein are made with some authority we recount here Mr. Griffith's experience and acquaintance with the fire brick industry.

He first made his acquaintance with refractories about 1905 or 1906 with the Southern Fire Brick & Clay Co., Montezuma, Ind. There he gained considerable experience and knowledge in the production of second and third quality fire clay brick. In later years Mr. Griffith had charge of the engineering and designing work for the Locomotive Arch Brick Co., Chicago. Following this he took charge of the refractories department of Thomas Moulding Brick Co., Chicago, also directing plant operations, then went to the sales department of the American Refractories Co. For the past 2½ years he has been sales manager of the Lavino Refractories Co., a subsidiary of E. J. Lavino & Co., Philadelphia. This plant handles approximately 70 per cent. of the chrome ore used in America and Mr. Griffith has made a special study of chrome ore and chrome brick.

IN BRICK AND CLAY RECORD of May 30, 1922, was printed an article entitled "Research Is Tool Which Will Improve Refractories." I am heartily in accord with most of the author's views on the subject of closer cooperation between producer and consumer and an interchange of knowledge, theories and experiences, but in my 15 years experience in the production and sales of practically all kinds of commercially known refractories I have never known a manufacturer of refractories who was not willing to go more than half way in the solution of any refractories problems a consumer might encounter. Therefore, I cannot find a basis for placing much, if any, of the blame for the lack of such cooperation upon the shoulders of the producer.

Purchasing Agent Often Is Stone in Path

Suppose we supplant all of the numbskull brick peddlers with highly trained ceramic engineers, fully versed in the metallurgical arts, will their superior technical training enable them to go thru or around the wall of purchasing agents and reach the man who uses their products, the actual consumer, who is constantly striving for efficiency and economy and who may be in urgent need of expert advice or suggestions, yet thru pride or for other reasons would probably not ask for outside assistance? A most vivid recollection of many vain efforts to reach certain operating men and other more successful attempts to reach these men, which resulted in their purchasing agent assuming a much injured attitude when he learned that such visits were made to the plant, prompts me to answer that question with an emphatic "No." Unless the consumers employ technically trained purchasing agents, or let down the bars that now keep the producer and consumer apart, neither refractories manufacturers nor refractories consumers will benefit by the substitution of technically trained salesmen for the present type.

Consumers Want "Cheaper" Refractories

The author of your article points out the greater value from a performance standpoint of silica brick that have been subjected to long continued burning and goes on to say that he does not know whether the supposed prohibitive costs of long continued burning were based upon competitive prices dictated by purchasing agents rather than upon what the industry could afford to pay for a brick that would probably give 100 per cent. longer life.

I would not attempt to fully answer that question, but I received a short time ago most impressive and convincing evidence from which one might conclude that comparatively few consumers and apparently none of the buyers are sincerely interested in better refractories unless they might also be cheaper refractories, viewed from the buyer's standpoint.

Consumers Do Not Encourage Better Refractories Making

Several kilns of silica brick were held on fire at about Cones 15 to 19 for many days past the usual burning period; when these kilns were drawn and reheating tests made, the brick showed permanent expansion of less than ½ of one per cent; the specific gravity was 2.29, which would indicate a rather high percentage of tridymite. An effort was made to place some of these brick in nearby plants; the services of our ceramic engineers were offered to assist in keeping records on their performance; the brick were offered at the market price of competitive brands, altho it was explained they had cost us considerably more. To my great discouragement about the only knowledge secured thru this effort was that the brick consuming interests, many of whom are raising such loud cries for better refractories, organizing refractories committees, employing efficiency experts and high priced engineers to reduce their production costs, seem to view any effort on the part of a brick manufacturer to introduce a new product into their plants by claiming superior quality or longer life as merely a wild idea of the brick salesman that this worn out sales argument would land an order; or they decided their obligation to the brick company, or companies, who took care of them during the war (a service which was nothing more than any reputable house with whom previous relations had been established would have gladly affected to the limit of their ability); or the whim of their bricklayer who does not like hard burned brick because they are hard to cut, was of greater importance than any saving that might be accomplished by the use of better refractories.

Chrome Ore and Chrome Brick

I realize that the author of your article did not attempt to cover in detail the entire field of refractories, but I feel the following statements regarding chrome ore and chrome brick should not go unchallenged, quoting from your paper, "Among other important refractories, mention should be made of chrome iron ore, which, when containing not less

than 43 per cent of oxide of chromium, is one of the most serviceable refractories used in the basic open hearth furnace."

One might assume from that statement that any chrome ore analyzing 43 per cent. or better would give satisfaction regardless of the percentage of other elements. It has been proven in a great many steel plants that this would be a most erroneous assumption. There are almost as many different grades of chrome ore as there are fire clays and no one would say that any fire clay containing 50 per cent. or more of silica (Si O_2), or 40 per cent. or more of alumina ($\text{Al}_2 \text{O}_3$), would be a most serviceable refractory, altho either element mentioned might be considered the most essential, yet its value may be greatly diminished by a high percentage of impurities.

Chrome Ore Sometimes Unsatisfactory

Chrome ore from several sources in which the chromic oxide content has been found as high as 52 per cent. has proven very unsatisfactory because of the very high iron content, altho the silica (an undesirable element if over ten per cent. but the importance of which has been greatly exaggerated) was in some cases less than two per cent. There is also found among the different grades of chrome ores wide variation in the physical characteristics; many are soft, friable ores, while some are extremely hard and dense. The hard ores containing 45 to 50 per cent. chromic oxide, low iron and well balanced proportions of silica, magnesia and alumina are by far the most desirable and popular either in the crude or ground state or in the form of brick. The most convincing evidence of the truth of this statement is the fact that the annual consumption in America of one brand of this high grade ore is more than three times the tonnage of any other one grade of ore.

Cost of Chrome Ore No Deterrent.

The complaint that the cost of chrome ore is a deterrent to more general use is hardly justified when you compare the present price on crude ore (running 45 to 50 per cent. $\text{Cr}_2 \text{O}_3$) of \$20 to \$25 net ton at seaboard with \$32 to \$35 net ton for dead burned magnesite and \$55 to \$60 net ton for magnesite brick, both of which are being used in many places where good chrome ore or chrome brick would give far better service.

As a matter of pride in the success of continued efforts to put chrome brick permanently on a higher plane among the more dependable refractories, I must take particular exception to the statement in your publication that chrome brick are a failure. This impression on the part of the author you have quoted may be, in part, due to the lack of sincere effort in the past of manufacturers to improve the quality of this important refractory. There has also been an impression created among consumers that chrome ore, or chrome brick, analyzing 38 to 42 per cent. chromic oxide were as good as could be produced commercially. Some manufacturers may have put forth imaginative theories explaining how the low chromic oxide content was not particularly indicative of low refractoriness or inferior quality, because the deficiency in this element was offset by the high percentage of other elements which are generally known among consumers to be highly refractory when taken alone or in combinations such as found in other forms of refractory material. Most of the consumers have proven to their own satisfaction that such claims are not substantiated in actual practice.

Good Chrome Brick Now Available

In recent years I have been very much interested in, and partly responsible for, developments in the manufacture of chrome brick, giving particular attention to the more careful selection of crude ore used, based on its physical adaptability as well as chemical qualities. The results have been

quite gratifying and in some ways surprising. Chrome brick are now available to consumers in unlimited quantities which will analyze 47 to 50 per cent. oxide of chromium ($\text{Cr}_2 \text{O}_3$); have much greater physical strength under load at high temperatures than was previously thought possible; are more resistant to slag penetration and less sensitive to temperature changes than magnesite brick; in fact, they have been proven in actual practice to be of such general excellence as to permit their use, with economy, in places where chrome brick have never been used before, or were considered undesirable except in emergencies.

You can readily appreciate the injustice done to manufacturers of chrome brick when such statements, (as appeared in the article that called forth my foregoing remarks) which might readily be accepted as authoritative due to the author's prominence among consuming interests, are published without some qualifying explanation. No consumer or investigator could safely condemn fire clay brick as a whole as failing to give satisfactory service because one or two inferior brands had failed, yet your author has taken the liberty of condemning chrome brick in general, probably based on his limited personal experience with a product which was inferior to the chrome brick now on the market.

* * *

A LITTLE DRAIN TILE HISTORY

According to the Uhrichsville (Ohio) Evening Chronicle, horseshoe drain tile were made by hand in Ohio as early as 1832. Its manufacture was then confined to Avon, Lorain County.

In 1857, a Mr. Canfield, who made the best horseshoe tile in Connecticut, removed to Milford Center, Union Township, and there manufactured horseshoe tile by hand until his death, in 1869. A Mr. Milner also operated a small tile factory at Columbus about the same time.

At the close of the rebellion W. S. Postle, of Prairie, and S. J. Wooley, of Brown Township, Franklin County, were first to establish factories, which were run successfully.

As early as 1810, horseshoe tile were manufactured in England. It was so called because it was shaped like a horseshoe, instead of cylindrical, and was laid with the opening at the bottom. For 30 years there was no improvement.

The first improvement over the horseshoe patterns was made by adding a bottom piece, called the sole tile, to the opening in the horseshoe. These improved tile were extensively used until superseded by the cylinder pattern, which is the only kind of drain tile now manufactured.

The only tile machines manufactured up to 1865 were made by A. La Tourtee, of Waterloo, N. Y., and Mattice & Penfield, of Willoughby, Ohio, who also manufactured tile. These men did not meet with any great success financially, but they were the pioneers in educating the people.

* * *

SEWER PIPE MEN WILL MEET IN LOUISVILLE

Evidently the Clay Products Association liked Louisville, Ky., and enjoyed the races to such an extent on the occasion of the May meeting that arrangements have been made to bring the September meeting there, about September 4 and 5, when the fall races will be on. It is not so easy to interest brick men in golf, but when it comes to horses, that's something else again. George C. D. Lenth, secretary, Chicago, was in Louisville a few days ago to make arrangements thru the Louisville Convention & Publicity League for the meeting.

* * *

Says August 5 Index: "It is evident that unless the trade gets a great many more men every year than it has been getting recently, brick construction will have to become obsolete because there will be nobody to lay the brick."

BUSINESS IN SOUTH IS VERY GOOD

Manufacturers and dealers of the southeast advise that, due to the continued building activity throughout the section, the demand for common and face brick, tile, etc., has experienced practically no let up during the hot summer weather, and that the business has now reached a point where all of the factories are operating at capacity with more orders in hand than they can well take care of. No slack is expected during the summer months such as is usually experienced, and demand is expected to pick up even more early in the fall. As a whole the year 1922 gives promise of being the best year for the industry in the southeast since the era of prosperity immediately following the war. Improved financial conditions among the southern farmers and good prices for this year's crops is favorably affecting building in the smaller towns and rural communities, and the farmers themselves are also expected to do a considerable amount of building this fall after the crops are gathered.

Building reports for June from ten of the largest southeastern cities show eight of them exceeding the June of 1921 by a big margin, with five well over the million dollar mark.

The industry is beginning to slightly feel the effects of

the railroad strike in the southeast but the manufacturers are confident a settlement will be reached before the situation becomes really serious.

Export trade with Latin-American countries is steadily improving and by the end of the fall this business is expected to reach the largest volume in its history. The biggest demand is from Cuba, though there is fair demand from other Latin-American countries further south. With Mexico, however, manufacturers state trade continues slack as the economic situation in that country is not improving. Better demand from Mexico is looked for before the end of fall.



PRIZE FOR PAPER ON VITRIFIED PIPE

Preliminary announcement of cash prizes for the best paper entitled "Use of Vitrified Clay Pipe in Plumbing Systems" is made by S. E. Dibble, head of the Heating and Ventilating Department of the College of Industries, at Carnegie Institute of Technology. The total amount of prizes is \$400. The contest will be open to all practical plumbing and heating dealers, inspectors, and so forth, as well as to instructors and students in all educational institutions where drainage is taught. Detailed announcements will be made about September 1, 1922.



Untermeyer in Europe—Getting Foreign Brick Ready for Shipment

EUROPEAN BRICK may be the pulmotor applied to the New York construction industry, should it begin to show serious signs of suffocation for lack of domestic supply, says the Dow Service daily building report of July 29, 1922.

Assemblyman J. H. Caulfield, who succeeded Senator Lockwood as a member of the Legislative Committee, of which Samuel Untermeyer is special counsel, told The Dow Service recently that he knew that before the committee's inquisitor left for Europe he had arranged to be kept in close touch with the brick and general building material situations in New York during his absence.

European Brick Ready to Ship Across

Furthermore, he expected to have available for immediate shipment from some European port, presumably, Danzig, at least two ship-loads of common brick which would be started across the Atlantic should New York's sources of brick supply fail thru natural or unnatural causes, sufficiently to start general price skyrocketing to the consumer and consequent suffocation of the general building industry.

The announcement made for the Metropolitan Life Insurance Co. that further progress with its great housing program in this city had to be indefinitely deferred because of the high price of brick and labor prices, coincided with unofficial word in the trade to the effect that the brick shipment was on its way.

"Every member of the Lockwood Committee," said Assemblyman Caulfield, "knows that Mr. Untermeyer planned, before he sailed, to prove that European brick could be shipped here in competition with American made brick and sold at \$10.50 a thousand, wholesale.

Manipulation of Brick Supply Suspected

"Events have been turning in such a way, since Mr. Untermeyer left this country, to indicate to almost any

interested observer, that some sort of manipulation of the brick supply was in progress. There was talk of fuel shortage and then prices started to move up. Then they began to go back again to low levels, at about the same time that the shortage of brick seemed to become even more acute and the rail strike further complicated the prospect of a plentiful brick supply just at the time when the construction movement of old-time proportions was getting under way.

"I investigated the brick situation myself, I have been to Washington, Baltimore, Philadelphia and to New York State brick manufacturing centers. I have seen why brick is scarce. I have seen that the fuel shortage is real and that the situation now is a plain one of shipping brick into this market as fast as it can be burned, but it cannot be burned faster than they are able to get coal, wood and coke to burn it with and all three are now almost impossible to get except in limited quantities and at great, and often, quite forbidding, prices.

Commercial Building Supplanting Housing

"Building activity is rapidly shifting from housing to commercial activity. Take New York, for instance, Manhattan is taking practically all the brick that is coming in. Manhattan has been the laggard borough in housing construction although it has led in business and institutional construction. There isn't anything like the quantity of brick going into Queens, Bronx and Brooklyn that there was during the earlier part of this year and the latter part of last.

"The Lockwood Committee is watching, with great interest, this contemplated experiment of its counsel to prove that foreign brick can be brought here and sold in competition with domestic varieties and present conditions seem to make the time for such a test ideal. It is keeping its eye upon the building material price movements during these stressed times.

FINE CERAMIC MANUFACTURE



A Department Devoted to Practical Problems in the Manufacture of Higher Grade Ceramic Products such as Whiteware, Including Electrical Porcelain, Floor and Wall Tile, Sanitary Ware, etc., as Well as Stoneware, Terra Cotta, Special Refractories and Other Articles Where High Grade Clays Are Employed in Their Fabrication.

WORKERS WANT OLD WAGE SCALE BACK

THE National Brotherhood of Operative Potters has asked the United States Potters' Association to re-establish the wage scale which prevailed August 11 and November 3, 1921, before war plusages were eliminated from the wage scale by joint agreement. The Brotherhood also asks that the eight-hour day be inaugurated, and that the work of the week consist of 5½ days, ending at noon, Saturday, with a distribution of wage envelopes or checks at that time.

In all 31 different propositions have been submitted to the manufacturers as a result of the recent annual convention of the Brotherhood at Atlantic City.

The mid-summer meeting of the United States Potters' Association was held August 2, 3 and 4, in the Stacy-Trent Hotel at Trenton, N. J., at which time the wage scale suggestions of the Brotherhood were discussed at length. The Labor Committee of the association, of which W. E. Wells, of the Homer Laughlin China Co., East Liverpool, Ohio, is chairman, has been advised of the wishes of the manufacturers. It is the Labor Committee which will join in joint conference with the Executive Board of the Brotherhood to work out a new working agreement.

Wage Increases Viewed Unfavorably

It is considered very doubtful that the manufacturers will see their way clear at this time to grant any wage increases or other changes in factory working rules. The general condition of trade, it has been pointed out by those in very close touch with the situation in the general ware pottery industry, is such that advances in selling lists would be strongly resented by distributors, and that the "let well enough alone" policy is the best to follow at this critical stage.

The time and place for the joint wage conference has not been selected, and will not be until Secretary Charles F. Goodwin of the Potters' Association and President John T. Wood of the Brotherhood confer within the next fortnight. The present wage agreement does not expire until October 1, next.

There has been no general strike in the general ware pottery trade for over 20 years, and none is anticipated this year. The policy of give and take has ruled all wage conferences for many years, and amicable agreements have always resulted, yet conference debates have been rather spirited and heated at times.

The official text of the demands which have been made upon the general ware pottery manufacturers follows:

1. That committees be appointed to fix a price on all sizes of coupe soup molds and all other unlisted articles.
2. That casters be paid the prevailing wage paid to jiggermen for putting in new and throwing out old molds.
3. That the casting price of 48's Rocaille Jugs be increased from 23c to 26c per dozen.
4. That jiggermen be paid for changing and oiling all molds, both old and new.
5. The following basis is submitted for the purpose of working out a fourway system of paying for jigging and finishing ware, in accordance with the action of the 1921 conference:
 - 4-inch Plates—Batterout, 75c; moldrunner, 65c; Nov. 3, 1921, 40 per cent.
 - 5-inch Plates—Batterout, 75c; moldrunner, 70c; Nov. 3, 1921, 40 per cent.
 - 6-inch Plates—Batterout, 80c; moldrunner, 75c; Nov. 3, 1921, 40 per cent.
 - 7-inch Plates—Batterout, 95c; moldrunner, 90c; Nov. 3, 1921, 40 per cent.
 - 8-inch Plates—Batterout \$1.00; moldrunner, 95c; Nov. 3, 1921, 40 per cent.
 - 4-inch deep or coupes—Batterout, 75c; moldrunner, 70c; Nov. 3, 1921, 40 per cent.
 - 5-inch deep or coupes—Batterout, 80c; moldrunner, 75c; Nov. 3, 1921, 40 per cent.
 - 6-inch deep or coupes—Batterout, 85c; moldrunner, 80c; Nov. 3, 1921, 40 per cent.
 - 7-inch deep or coupes—Batterout, \$1.00; moldrunner, 95c; Nov. 3, 1921, 40 per cent.
 - 8-inch deep or coupes—Batterout, \$1.10; moldrunner, \$1.05; Nov. 3, 1921, 40 per cent.
 - Outside Nappies, 5 in., 6 in., 7 in., 8 in., Batterout, \$1.67; Moldrunner, \$1.62; Finisher, \$2.00; Clay, 17½c; Jiggerman, \$4.52½ per 100 dozen plus 40 per cent.
 - Plain saucers—Batterout, 57c; moldrunner, 55c; Nov. 3, 1921, 40 per cent.
 - Festoon saucers—Batterout, 57c; moldrunner, 55c; Nov. 3, 1921, 40 per cent.
 - Oatmeals, 30c, 36c—Batterout, 57c; moldrunner, 55c; Nov. 3, 1921, 40 per cent.
 - Ind. butters—Batterout, 54c; moldrunner, 52c; Nov. 3, 1921, 40 per cent.
6. That all finishers, male and female, regardless of relationship, shall be employed, discharged and paid by the firm.
7. That the following shall prevail in determining extra thin cups from ordinary thin cups; any cup weighing less than the following scale to be classed as extra thin:

Capacity	Weight
8 ounces	4 ounces
7½ ounces	3¾ ounces
7 ounces	3½ ounces
8. That committees be appointed to work out a size list based on block mold measurements.
9. That dishmakers be paid the prevailing wage paid to jiggermen for moving old and new molds, and for putting in new flags and putting out old flags.
10. That manufacturers provide improved stove rooms for dishmakers when convenient to do so.
11. That dishmakers be furnished clay on their benches free of charge when working without a helper.
12. That saggermakers be relieved of the running out of green saggars.
13. That the cubic foot measurement for a kilnman's day be reduced from 162 cubic feet to 152 cubic feet in glost, and from 200 cubic feet to 190 cubic feet in bisque.
14. That 304 cubic feet in glost and 380 cubic feet in bisque shall be recognized as a kilnman's day; journeymen to be paid at the rate of \$5.80 per kilnman's day and bench boss be paid at the rate of \$7.00 per kilnman's day, with a recommendation that one kilnman's day be considered a day's work.
15. That flat ware from the first ring of bisque kilns be separated from the flat ware from other parts of the kiln before going to the dipper.
16. That women kilndrawers be paid on the following cubic foot basis for drawing kilns: 25 cents per 100 cubic feet for glost kilns and 27 cents per 100 cubic feet for bisque kilns.
17. That all ware be dusted for piece work gilders at expense of firm.
18. That the day work rate for gilders and liners shall be 75c per hour.
19. That the earnings of the printer and crew shall be divided as follows: 55 per cent to the printer and 38 per cent of the remainder for the rubber.
20. That the day wage rate for a printer and his crew shall be \$10 per day of eight hours.
21. That committees be appointed for the purpose of adopting a uniform count for printers and their crews.
22. That the day wage rate for decalcomania workers shall be 50c per hour.
23. That gilders be paid four cents per dozen for all scheme handles except cup handles.

24. That all packing either with or without straw shall be done by recognized packers.
25. That increases be granted in the wage scale equivalent to the reductions that went into effect August 11 and November 3, 1921.
26. That the day wage rate for clay ware making shall be 85c per hour, net.
27. That 2½ per cent. shall be considered an excessive loss for all clay workers where the maker is not at fault.
28. That no employe shall be discharged for other than poor workmanship, unless the firm can give sufficient reason to the local union under whose jurisdiction the discharged employe is working.
29. That all potteries suspend operations at noon on Saturday, and pay not later than noon on pay day.
30. That a standing committee be appointed for the china trade East of the Allegheny Mountains, the committee to meet in Trenton, N. J., to settle grievances from china potteries only.

* * *

JAPS THREATEN ENGLISH EXPORT TRADE

Japanese pottery competition in the United States and Canadian markets has become a factor of considerable importance, according to the potters in England who see in the great improvement of Japanese pottery a sign that the oriental folks are out for trade. Until recently the potters of Staffordshire, England, concerned themselves little with the activities of the Japanese and the Germans since it was agreed that Japanese ware was notoriously uneven in quality and rarely up to sample, while the German pottery goods, intended for general use were below the British standard of quality if not of price. But today matters are changing.

Japanese pottery recently seen in the retail stores of England has been an eye-opener to the potters there. In place of indifferent body work and unfinished coloring and gilding there have been substituted articles of splendid workmanship. As a result the English potters have come to the conclusion that from now on Japanese pottery has to be taken strictly into account when supplying export markets, particularly in the U. S. A. and Canada.

In metropolitan stores there Japanese pottery is being featured. Japanese teaware of exceptional quality can be seen. This ware is retailed at just under \$3 per dozen cups and saucers, it being purchased by the retailer at \$1.81 the set. For ware of around the same quality the English manufacturer has to charge well over \$4 the dozen and still be content with a small profit.

The quantity of this kind of eastern pottery is reported by the trade to be limited, so far. But in the big export markets of Canada and the U. S. A. the potters understand that this ware is being consigned in bulk and having a good reception.

The improvement in the china-clay trade in England is most marked, the feature being the export trade with America. Three of eight cargo steamers bound for American ports just recently carried 20,000 tons of china clay. Experts declare that china clay from Cornwall is an insulating material of high excellence and now that wireless broadcasting is making special demands on the electrical industry it is anticipated that the demand for china clay is going to be enormous. Already it plays an important part in the manufacture of china and porcelain, as well as in heavier goods, such as sanitary ware, glazed tiles and the more delicate surgical ware.

* * *

MAKES SANITARY WARE FROM LOCAL CLAYS

Among the many plants sprung up in California in recent years is that of the West Coast Porcelain Manufacturers. This is an organization of west coast capitalists. The chairman of the Board of Directors and the active head of the organization is Henry Weiss. Others of the Board are Ritchie Dunn; Moritz Thomson; Matthew P. Platts, managing superintendent of the plant; and Ed Durant, assistant manager. The company was organized in 1918, and began operations in January, 1919, at Milbrae, Cal., about 13 miles from Santa Cruz. For the making of porcelain sanitary ware, they first installed four kilns, capable of holding 450 pieces each. To these they have since added two more kilns. The company

has been able to secure an abundance of good local clay, and is producing from local clays exclusively a general two fire vitreous product. "Still," says the secretary, "if the low steamship rates continue, we may find it as cheap to import some of our clay." There is an abundant demand for all the company's facilities to produce. The market is confined to the west coast, and much of the delivery is effected by truck.

Climatic conditions enable the company to work the year round, regardless of heat or cold.

* * *

GIVES DINNER TO SALES FORCE

The Trenton Potteries Co., Trenton, N. J., gave a dinner to its sales force at the Hotel Stacy-Trent recently. The dinner has become a semi-annual event of considerable importance and is held in connection with a regular trade conference. Those in attendance included George E. Hoffman, sales manager; William E. Hinsdale, W. G. Titus, Fred C. Allen, A. King Aitken, William J. Bapst, J. Russell Allen, P. F. Howard, George E. Stevens, Fred J. Mackenzie, Walter G. Sine, Edward J. Tallon, P. F. Howard, B. W. Weber, M. W. Lansing, Robert M. Fielder, John C. Moore, John J. Donovan, Hugh Van Sciver, Albert C. Hoffman, Henry F. Knoebel and Harry Sine.

* * *

MINERVA POTTERY BUILDING NEW PLANT

Plans of the directors of the Minerva (Ohio) Pottery Co. were approved at a meeting of the stockholders. It was announced that the finances have been arranged and site purchased for a new plant. The site is west of the present plant. With the completion of the new plant the capacity will be doubled. One hundred men will be used in the construction of the plant, it is announced.

* * *

BUILDING ADDITIONS TO PLANT

The Robertson Art Tile Works, Morrisville, Pa., has construction under way on a new one and two-story addition, 110x160 feet, and expects to have the structure ready for occupancy at an early date. A portion will be used for warehouse purposes, and another part for office services. The company is operating at full capacity, under day and night shift, and incoming orders are said to be far ahead of output, insuring capacity production for some time to come.

* * *

ORGANIZE TO MAKE ART TILE

The Reliance Art & Faience Co., Perth Amboy, N. J., has been organized under state laws with capital of \$300,000, to manufacture art tile and other ceramics. The company is headed by Fred Keck, George J. Janovsik and N. F. Herron, 107 Fayette Street, Perth Amboy.

* * *

FORM WATT POTTERY CO.

The Watt Pottery Co. has been chartered with a capital of \$50,000 to manufacture various kinds of pottery. The location of the plant is Crooksville, Ohio. The incorporators are C. L. Dawson, Harry N. Watt, Thomas F. Watt, Marion V. Watt and Tom O. Crossan.

* * *

TERRA COTTA COMPANY BUSY

The Conkling-Armstrong Terra Cotta Co., Philadelphia, Pa., is operating its plant at full capacity and reports a heavy demand for material. A number of departments are now running on an overtime schedule to handle current orders for important work.

The Superintendent

Helpful Hints for Practical Men
Whose Problem Is Maximum
Production with Minimum Cost

All the information contained in the Superintendents Department in this issue has been taken from the statistical section of the Clay Products Cyclopedia, the first edition of which has just recently been issued. This book is full of valuable information of this character and parts of it will be published from time to time in this department.

EQUALIZATION OF PIPES IN STEAM DRYER

One square foot of radiating surface is produced by:

3.63	lineal feet of	3/4 inch pipe
2.9	lineal feet of	1 inch pipe
2.3	lineal feet of	1 1/4 inch pipe
2.01	lineal feet of	1 1/2 inch pipe
1.608	lineal feet of	2 inch pipe
1.329	lineal feet of	2 1/2 inch pipe
1.090	lineal feet of	3 inch pipe
0.955	lineal feet of	3 1/2 inch pipe
0.848	lineal feet of	4 inch pipe
0.763	lineal feet of	4 1/2 inch pipe
0.685	lineal feet of	5 inch pipe
0.576	lineal feet of	6 inch pipe

In connection with steam coils for a reduced pressure of 30 pounds the following sizes should be used:

Sq. ft. surface	Size of steam main	Size of return
450	2 inches	1 1/4 inches
650	2 1/2 inches	1 1/2 inches
1,000	3 inches	2 inches
1,350	3 1/2 inches	2 inches
1,725	4 inches	2 1/2 inches
2,700	5 inches	3 inches
4,000	6 inches	3 1/2 inches

* * *

B. T. U.'S THAT ONE DOLLAR WILL BUY

Fuel	Basis	B. t. u.
Bituminous Coal	13,500 B. t. u. per lb.	6,750,000
	2,400 lbs. at \$4.00.	
Anthracite Coal	13,500 B. t. u. per lb.	3,375,000
	2,000 lbs. at \$8.00.	
Seasoned Hardwood	4,000 B. t. u. per lb.	2,700,000
	\$8.00 per 4 ft. cord.	
Natural Gas	1,000 B. t. u. per cu. ft.	3,333,000
	\$0.30 per 1,000 cu. ft.	
City Gas	600 B. t. u. per cu. ft.	600,000
	\$1.00 per 1,000 cu. ft.	
Crude Oil	19,000 B. t. u. per lb.	1,615,000
	\$4.00 per bbl.	
Electricity	\$0.08 per kilowatt hour	4,266
	\$0.01 per kilowatt hour	
Alcohol	95 per cent. volume, \$1.00	78,302
	per gallon (6.58 lbs.).	



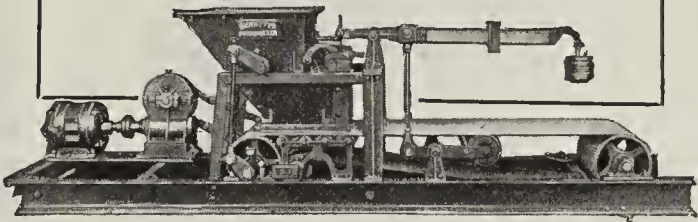
ACCURACY

Predetermination of quality in the mixing and tempering of your clay and 99.75 per cent. accuracy in tempering and weighing soon amounts to real savings for the manufacturer.

The Poidometer eliminates waste and extra labor, eliminates cracked ware in the dryer, and will weigh your clay at any rate of speed (1 1/2 pounds to 21,000 pounds per minute).

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The clay products manufacturer who employs the Marion "Rust Special" Feeder Mixer to mix and temper his clay, is going to take the lead in 1922, because the Marion does reduce costs and does better the quality of the ware.

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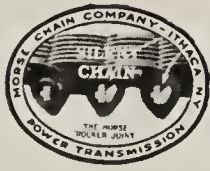
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RADIATION SUPPLIED BY EXHAUST

A simple engine requires 35 pounds of steam per horse power per hour on an average. This steam will contain, say, 980 heat units as it is exhausted, and the engine will therefore deliver about 34,300 heat units per horse power per hour in its exhaust. About 3,430,000 heat units are thus available from a 100 horse power engine per hour. If this were all used in a heating system and the returns came back at 150 deg. there would be available roughly 3,000,000 B. t. u. Allowing a radiation of 250 B. t. u. per square foot from the ordinary radiator, the exhaust from a 100 horse power engine would therefore supply roughly 12,000 square feet of radiation, provided no steam were used for heating the feed water.

The radiation per hour per square foot of radiating surface is considered to be 280 B. t. u.

The Letter Box

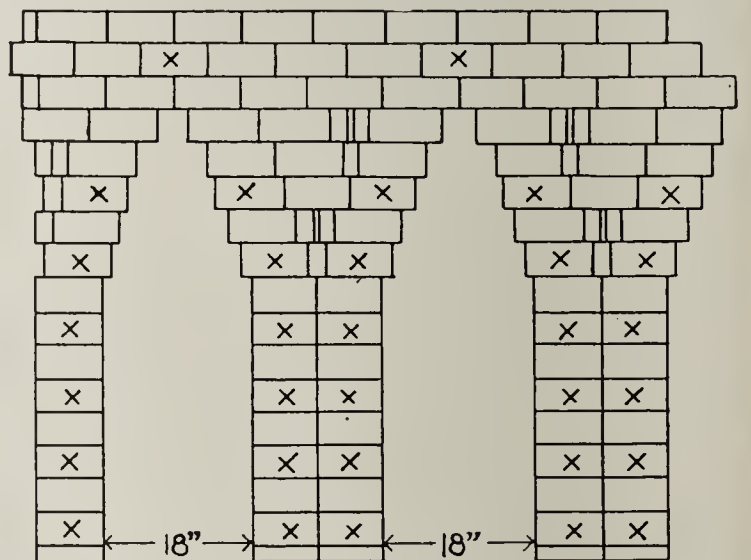
A Place Wherein Letters That Have General Interest Are Published and Commented Upon

TWO BRICK VS. FOUR BRICK BENCH

Our readers will perhaps remember the discussion which George W. Cook of Syracuse, N. Y., prepared on an article written by Elias Petts and published in the December 27 issue of Brick and Clay Record. The discussion by Mr. Cook, together with a reply from Mr. Petts, appeared in the February 21 issue of Brick and Clay Record in the Letter Box.

In the following letter Mr. Cook describes the method under discussion, which has been used successfully by him for a great many years:

"Mr. Petts states in his reply to my letter which you published in your February 21 issue that if these articles on burning in



Method of Setting Two-Brick Benches Showing Also the Construction of the End-Arch.

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BRICK AND CLAY RECORD

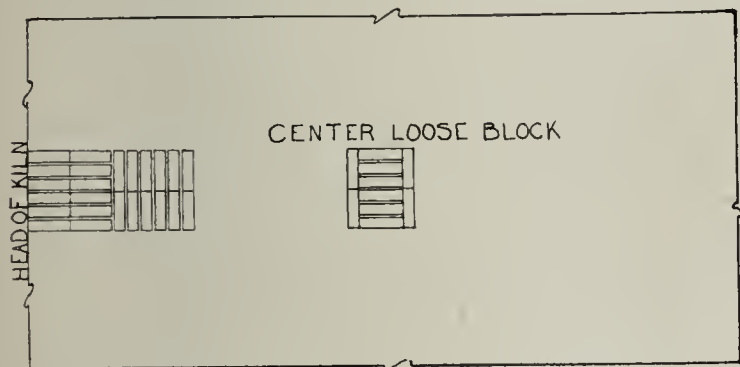
up-draft kilns create a friendly discussion we may get some real information out of them. I fully agree with him on this point, and it is in this spirit that I write my experiences. My suggestions are not intended to be unfriendly criticisms, but to stimulate thought and are given for the benefit of the industry in general.

"Mr. Petts makes the statement that there are a great many brick being made which in a two-brick bench for a kiln would not sustain the weight, and that there are others with which the two-brick bench would be possible. On this point I may

be justified in stating that if one has several strata of clay, the first step toward securing a successfully burned kiln of brick will be a proper mixture of the raw materials. The proper setting of the brick is, of course, considered very essential.

"There are some manufacturers in the industry who have several strata of clay that make it possible to use the two-brick bench, and it is for these manufacturers that I take my stand and enter into a discussion showing the various methods of setting to suit different conditions.

"Mr. Petts asserts that I claim 44 inches more fire space than the same kiln with a four-brick bench would have. He cannot



Method of Setting Block on Top of Closed Benches. The Rest of the Kiln is Set Regular.

see any escape for the fire except thru the overhangers, whereas the method shown by him of setting the four-brick bench gives as much fire space thru the middle brick as thru the overhangers, and that herein lies the success of the four-brick bench.

"I hope to show plainly the path of the escaping fire of the two-brick bench and the four-brick bench methods. I will not make any claim for either, leaving that to the readers who can judge from the parallel description of the two methods.

"As the kiln we are discussing is a direct fired up-draft kiln, I will use the side lines of the fire opening as a basis. We must consider the lower portion of the middle of the bench; of course, in the upper part of the body of the kiln, the heat will spread more quickly than in the middle of the lower bench. If the side lines of fire openings are considered, the distance between the fires of two four-brick benches with a 16-inch fire opening, direct up-draft fire lines, would be 16½ inches. The secret of the success of the one method over the other will be plainly seen from the above description.

"With regard to the overhangers dropping out in the four-brick bench, Mr. Petts states it was due to the fact that the fire was cut off in the middle benches, with the result that they heated too slowly and the fire bench settled first. That was the cause in my case with the strata of clay which I have. I also claimed that, using the four-brick bench for my condition with a 33-inch width bench, the fire was cut off from the middle bench and the fire bench settled first. I overcame that difficulty by changing to the two-brick bench. I claim what I think is fair to those in the brick industry, that two, three and four-brick bench methods should be described in Brick and Clay Record to meet different conditions.

"One in charge of burning should know various methods for



The Entire Top of the Kiln is Set in the Manner Shown Here. The Outside Course is Set Loose, the Balance Tight.

treating various strata of clay. He should know the kind of clay the brick which he has to burn are made of, and select the best method suited for his conditions. I know that in many cases there are men in charge of brick plants and in charge of the burning of the brick that cannot set a kiln of brick and do not



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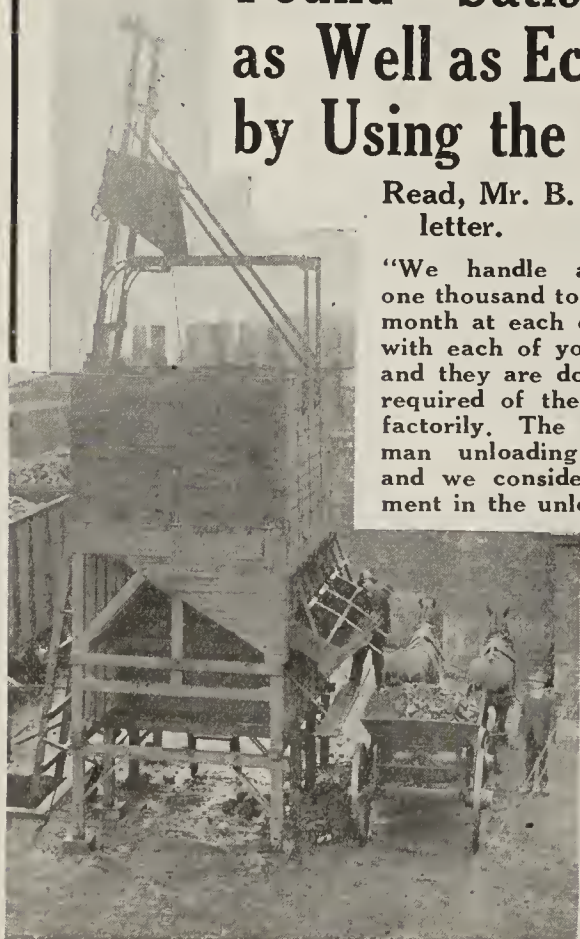
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Read, Mr. B. B. Belden's letter.

"We handle approximately one thousand tons of coal per month at each of our plants, with each of your unloaders, and they are doing the work required of them very satisfactorily. The saving over man unloading is material and we consider our investment in the unloaders a good one."

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know how the brick should be set for the conditions which the particular clay requires. And usually the brick setter or setters do not know how the kiln should be fired. Frequently neither the burner nor setter knows the peculiar properties of the clay from which the brick are made. It is this relationship of setting with respect to burning that I had in mind in my previous letter, when I stated that I had only a small percentage of damaged brick largely due to knowing the relationship between the setting and the burning.

"Mr. Petts stated that 'the four-brick bench seems to have touched a tender spot in Brother Cook's feelings.' Not in the least bit, but when I set my kiln with a four-brick bench the fire touched a tender spot on the fire bench and overhangers. That is the reason why I changed from a four brick to a two-brick bench.

"Mr. Petts asks 'if one can use a four-brick bench successfully, why burn a two-brick bench?' I was under the impression that these various methods were shown for those who were using unsuccessful methods, so that they could select the proper method to meet their conditions.

Very truly yours,

George Cook.

P. S. After I had finished writing the above and had prepared a sketch showing my method of setting a two-brick bench, the thought came to me to pencil a few lines in favor of placing two tight courses of brick with joints broken and two flat courses of platting on the extreme top of a wood-fired kiln, or coal-fired scove kiln, over the old way of loose platting without the two tight courses. I find it to be a great help for spreading the heat to the open heads and to the $1\frac{1}{2}$ open block of the end arches, and to the center of the kiln, and that it keeps the kiln very uniform at all times. It consequently saves time and fuel by enabling the kiln to proceed uniformly.

"The accompanying show how I set my two-brick bench in my wood-fired scove kiln. On top of the closed bench, make two running courses for a bind so that the jet brick cannot come out of place, and start regular 10 to 12 brick square as one may wish. We sometimes call them double blocks, as they are not set in single brick blocks. Face two brick together in pairs, as I have found that in some cases brick check by crossing each course. By facing two together one has the strength of two brick in carrying the weight, and also a more even draft. Moreover, one will always have one good face on each brick.

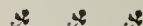
"Set the first double block on the head of the kiln, second block reverse regular to the center of the kiln. The rushing flames of the fire will remain in the head block to the entire top of the kiln. Sometimes we find that the fire draws away from the head. Set this block regular to the extreme top of the kiln, but make the one brick next to the wall a header. Start the tight courses against the header. The head of the kiln will at all times have the lead in draft controlled by the platting.

"In the center of the kiln make a small flue on one single brick, one way double block. Another way would be four brick, two faced together, and still another way would be five or six brick as one may wish.

"The loose block would carry off the water-smoke, while firing up the head, and will also help to make draft when firing for the middle of the kiln.

"I sometimes have found that by not having plenty of draft in the center as the fires are starting at the head of the kiln the brick in the center of the kiln become very damp and soft, and are not in condition to receive heavy fire as the kiln heat advances. In some cases the center of the kiln will be water-smoked from the heat of the fire boxes. If the kiln in the center has sufficient draft, the water-smoke can escape as soon as the brick start to warm up.

"As to the height of the kiln, I do believe that by having the tight courses on the top of the kiln one could set the kiln much higher and get good hard burned brick, than one could with loose top and loose platting, because the heat would then be leaving thru the top too rapidly."



CUT GEARS VS. CAST GEARS

An article in Brick and Clay Record recently included the remark that cast gears are very much used in clay plant machinery, and serve their purpose admirably well. If they do, then cut gears, and especially cut steel gears, will serve the same purpose many times as well and many times as long, at less ultimate cost. It stands to reason that no molding process can produce as perfect finishes as machine work. There is no way to control shrinkage or distortion in castings, and micrometric measurements will almost invariably show irregularities in teeth and in their spacing.

This is further demonstrated by the very few cast gears which can be mated without filing. Many cast tooth gears are not truly round, hubs are not truly central, with the inevitable result of lower mechanical efficiency than that of machined gears.

The highest efficiency I have ever seen claimed for cast tooth gears is 80 per cent., while in some cases where the molding is inferior this runs as low as 55 or 60 per cent. It is a very poorly cut spur gear that will not run 95 per cent. efficiency, and the average is higher—up to 98 per cent., according to the accuracy of the machine work. Thus it is a very simple matter to determine whether or not cast gears do really serve their purpose admirably well. They certainly do not, if they waste power, due to their own friction losses, amounting to much more than their first cost.

Assume for a basis of comparing ultimate cost, a cast tooth gear of highest efficiency, 80 per cent, worth \$25, transmitting power from a 100 horse-power motor, a cut gear of lowest efficiency, 95 per cent., worth \$37.50, working under identical conditions, and the cost of power as 0.6 cents per horse-power hour. At the end of a year, 300 ten hour days, each equipment has cost for power \$1,800.00.

The cast tooth gear has transmitted 80 per cent. of the power delivered to it, a friction loss of 20 per cent., or\$360.00

The cut gear has transmitted 95 per cent. and lost in its own friction 5 per cent., or 90.00

Saving in favor of cut gear.....\$250.00

It has cost \$250, ten times the price of the cast gear, to save the difference in first cost, \$12.50. It has cost 20 times the amount saved.

Is there a single good reason for using cast tooth gears?

This is in nowise a criticism of cast gears or their manufacturers. It is inherently impossible to make a cast product as true and as smooth as a machined product and the molded gear manufacturer recognizes the fact, but he has a market for his product nevertheless, and it is only good business to supply it to the best of his ability. Neither is this necessarily a criticism of the men who use cast gears in preference to cut gears. Some men who see only first cost and overlook operating cost may be criticised for their short-sighted policy, but the real remedy lies in education which should be carried on more vigorously by the cut gear manufacturers. If they once make a brick plant man realize and believe that it costs him heavy power losses to run cast gears then they will have conferred a benefit not only on him but on themselves.—J. E. Mullen.

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CLEVELAND PLANS BUILDING SHOW FOR '23

Another building show for Cleveland for 1923 was announced this week by E. A. Roberts, secretary of the Cleveland Builders' Exchange and secretary of the Cleveland Complete Building Show Co.

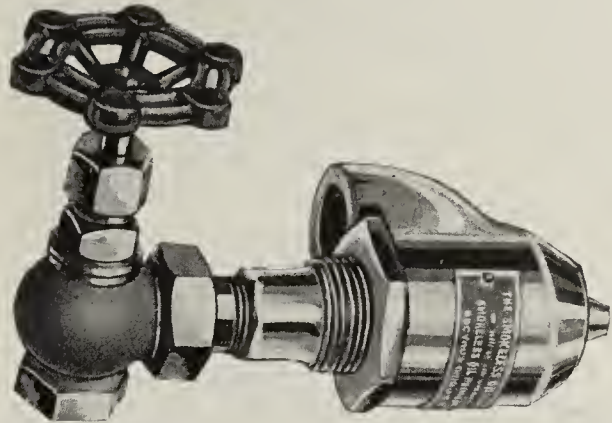
The 1923 event, to be held in the Cleveland Public Hall, will be devoted more liberally to housing rather than general construction, and will be known as a "Home Beautiful" or "Ideal Home Show."

Linked with the proposition will be liberal displays of furniture and home equipment materials to be supplied by local furniture and supply interests. Some work will be done by the Cleveland School of Art and the Cleveland Chapter, American Institute of Architects. Probably the show will be held in April.

According to Mr. Roberts, easily 90 per cent. of the exhibitors this year will again take space in 1923. It is probable that Ralph P. Stoddard, secretary of the Common Brick Manufacturers' Association of America, will again be the managing director.

SMOKELESS OIL BURNERS

Stand first in the burning of Clay Products



Because on the basis of fuel used they cost less than any other burner you can buy.

Because in speed of burning they save from 10 to 30 per cent in time.

Because they are so simple to operate in all stages—from water smoking to finished burn—that they easily stand out as the

FIRST REALLY EFFICIENT KILN BURNERS

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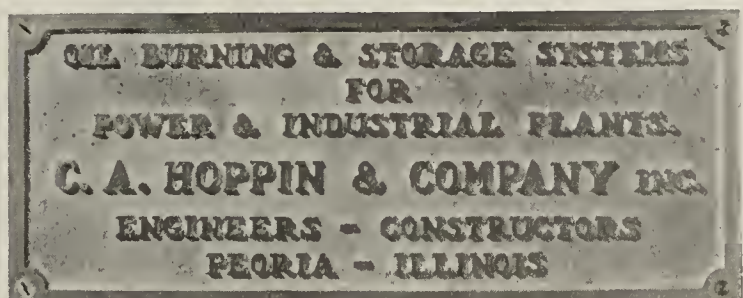
NOW IS THE TIME TO INSTALL THAT OIL BURNING SYSTEM

Not only will you be able to improve the quality of your ware, cut your costs in half, but you will be protecting yourself against a possible coal shortage.

Let us figure on your requirements.

No obligation whatever.

C. A. HOPPIN & COMPANY
Peoria, Ill.

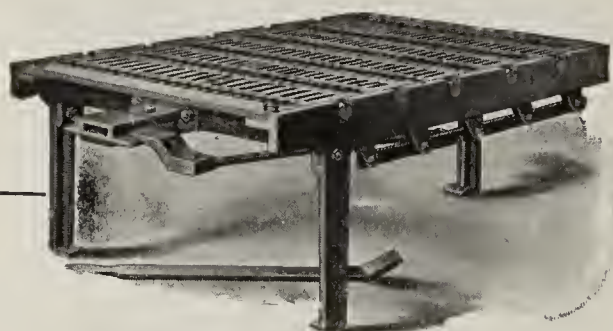


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Canton Grates will save you about one-fourth on your fuel bills. They will enable your operators to attain and maintain temperatures without excess use of fuel.

It won't cost you to get complete information today and it may mean profit for you. It has to many others.

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The Canton Grate Co.
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The Minter System *Columbus, Georgia*

WHAT WE DO **BUILD COMPLETE PLANTS** **OR ANY PART**

Nine of our Kilns will produce as much as 15 Kilns burned periodically—any product—any fuel. **Saving first cost of six Kilns.**

Ten of Our Recirculation Drier Tunnels will dry as much as fifteen old line tunnels. All ware dried evenly without strains. No loss, wrecks or other delays. **Saving first cost of 6 tunnels and equipment.**

Kilns and Drier can be adjusted to the highest speed that any material will stand. What could do more?

DON'T BUILD BEFORE YOU KNOW
The Minter System Plants are Producing the Cheapest Building Material made in America today.

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Flint River Brick Co.,
Albany, Georgia

Engineering Dept. and
Branch Office
922 Broad Street,
Columbus, Georgia

In the Wake of the News

Being Brief Mention of a Host
of Interesting Happenings in the
Varied Fields of Clayworking

I. C. WHEELER, AGED BRICK MAN DIES

Isaac C. Wheeler, 78 years old, a pioneer in the brick industry in Carthage, Mo., and prominently identified with the manufacturing industries of the city for many years, died at his home there. Death followed a general breakdown during the past two years. Two sons and a daughter survive him.

O. E. WILSON LEAVES SHERIDAN COMPANY

O. E. Wilson has resigned as superintendent of the Sheridan (Wyo.) Pressed Brick & Tile Co., and Carl F. Kneisel, who for the last 12 years has been active in the affairs of the concern, has resumed management.

MADE DIRECTOR OF NEW GLASS COMPANY

W. S. Stapler, president of the Stevens Brothers Co., of Stevens Pottery, Ga., and prominently identified with the brick and clay industry in the southeast, is one of the directors of the newly organized Atlanta Glass Manufacturing Co., a half-million-dollar corporation that will establish a big glass plant in Atlanta, Ga.

J. T. BARRON MADE HEAD OF POWDER MILL

John T. Barron of the Barron Brick Co., Roanoke, Ill., has been elected president of the American Powder Mills, Boston. This is a very large concern employing some 500 men in the manufacture of smokeless and sporting powder. One of the first jobs which Mr. Barron ever held was given to him by this company 40 years ago, and at that time he earned \$4 a week. Later on, he acquired stock in the company and on July 10 of this year was elected president. He will continue as head of the Barron Brick Co.

BUILDING NEW PLANT AT SANTA BARBARA

Rapid progress is being made on the construction of a new brick and tile plant at Rincon Creek, near Santa Barbara, Cal., which will be operated by L. L. Brentner, Jr., of Carpinteria. Part of the machinery has been installed, and Mr. Brentner expects to be delivering brick and hollow tile by August 1. The plant will turn out 30,000 brick and 15,000 tile daily.

MAKE MILLION BRICK PER DAY

Production of common brick for the huge building operations of Los Angeles and the way in which the brick manufacturers have caught up with the demand, is an industrial story in itself, reflecting credit on the industry; because there could have been no \$62,000,000 building in 1920; no \$80,000,000 building in 1921 and there could have been no \$49,000,000 building in the first five months of 1922, had not the makers of common brick, without the addition of any new plant, taken vigorous hold of the situation and brought their production up to the great building requirements.

Careful inquiry recently, has disclosed the fact that the brick plants of Los Angeles have now brought their capacity up to a million brick a day, and that still further additions to mechanical equipment will within 30 days bring this capacity up to 1,200,000 a day.

ELECTRIC SIGN ADVERTISES BRICK

Another example of the enterprise of the Los Angeles Pressed Brick Co., which has made that company one of the foremost of the Pacific Coast plants is the method of advertising shown in the illustration. It is an electrically illuminated sign with letters 30 inches high which can be seen for almost half a mile



An Electrically Illuminated Sign to Advertise Brick.

in either direction. The building to which it is attached is the Frost Building, named after Howard Frost, president of the company. The Los Angeles Pressed Brick Co. occupies the entire fourth floor for its offices.

MAKING 550,000 BRICK DAILY

H. B. Howeth, general manager for the Simons Brick Co., oldest and largest producer in Los Angeles, Cal., gives out the statement that the shortage of common brick, caused by the unusual number of rainy days during the past winter, has been overcome, and that all demands can now be met promptly.

The Simons Brick Co. operates five plants, of which one only is used for the manufacture of hollow tile and roofing tile, and the other four are all given over to common brick making.

At Simons, Cal., about 15 miles southeast of Los Angeles, on Telegraph Road, the Simons company has a 150-acre plant, said to be now one of the largest, if not the very largest single brick plant in the United States. The entire town of Simons is on the company's property, and the entire population of the place, now about eight hundred and soon to be increased to about one thousand, draws its living from work in the brick plant.

The settlement is entirely Mexican and has its own church and padre. There is a county school with four teachers; a government postoffice; a company store and a contented employees' list of nearly four hundred men, which is to be increased to five hundred with the installation of the last two of the recent order for brick machines. This installation is now under way.

Two new machines of 36,000 daily capacity each have just been put into operation at this plant, bringing its production up to 365,000 brick daily. The two new ones will add 72,000 daily to this production, giving the one plant a daily output of about 435,000.

At Montebello, the Simons company has 13 acres and is



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WARRANTED
MOLDS**

Furnished in any type or size, with panels, letters, etc. There is no better mold on the market.

Air-dried, carefully selected Cherry and Maple insure satisfaction. 40 years' experience in the soft-mud line and our thorough understanding of the clay operator's requirements guarantee this.

Write for our prices

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WELLINGTON, OHIO**

THWING

HIGH RESISTANCE MULTIPLE RECORD PYROMETERS

THWING PYROMETERS

attached to your kilns will eliminate guesswork and the loss that it causes through improperly burned ware. They will enable your burners to fire intelligently at all times, by giving them a complete record of every burn from the time the fires are lit until the burn is completed.

The progressive clay products manufacturer uses Thwing Pyrometers.

Write for complete information and catalog

THWING INSTRUMENT COMPANY

3347 Lancaster Ave.,

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*in regards to property costs
and values, is essential—*

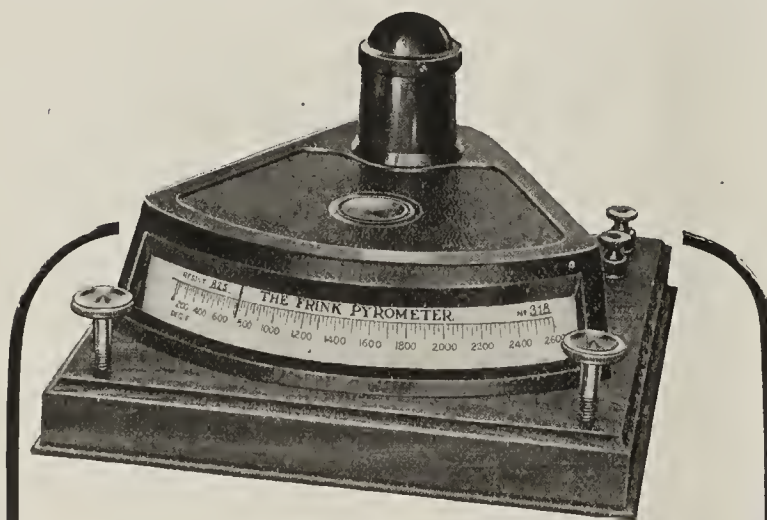
No matter whether it be in connection with insurance, accounting, taxation, financing, or plant administration, reliable appraising is imperative.

American appraisals have proven their value for a generation. Plants in successful operation all over the country which have had our help are evidences of the value of American Appraisals.

*Let us show you what can
be done in your plant.*

No obligation for information

**THE AMERICAN APPRAISAL CO.
MILWAUKEE**



The FRINK Pyrometer

After long experience and effort we have succeeded in bringing into use an exceptionally sensitive but exceedingly hardy instrument; an instrument free from tedious adjustments and equal to any occasion. The advent of this instrument, together with our maintenance of our guaranteed service, have been responsible for our phenomenal success.

WRITE US TODAY

**The Frink Pyrometer Company
LANCASTER, OHIO**

working to full daily capacity of 75,000 brick, made by the stiff-mud machines, in what Manager Howeth declares to be the most efficient plant of its size anywhere, in its compactness and economy of production.

At Santa Monica the Simons company is producing another 40,000 brick daily; and at the Boyle plant on Boyle avenue, Los Angeles, there are 20 acres, with a plant given entirely to the manufacture of hollow tile and roofing tile. The total capacity of the Simons Brick Co., when the last two machines have been installed, will be 550,000 brick daily. The other manufacturers have a capacity of 450,000, which will be still further increased; and unless the building program goes to unexpected further increases above \$100,000,000 annually, no immediate further brick capacity will be necessary, is the statement of the manufacturers.

Should large sewer building be undertaken and the brick requirements thereby suddenly increase, it will be a simple matter to make the production meet the demand by the addition of machines, as there is inexhaustible clay for common brick in the vicinity of Los Angeles.

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The Stiles & Reynolds Brick Co., North Haven, Conn., will install a new dryer at its Berlin works.

INCREASES CAPACITY 5,000,000 BRICK

The R. O. Clark Brick Co., Berlin, Conn., is now installing a new dryer at its East Berlin plant. The production capacity of the plant will be increased about 5,000,000. Recent rains set back production in the yards nearly 1,000,000 brick.

MAY BUILD PLANT IN HARTFORD

Michael Kane, brick manufacturer, No. 190 New Park Avenue, Hartford, Conn., contemplates the opening of a new plant on Prospect Avenue, West Hartford, where he has an 80 acre tract. The new plant, if opened in the fall, will include modern equipment. Much difficulty is now encountered obtaining labor, despite the business depression. The old yard is being worked to capacity and it is hoped to exceed the production of last season when 4,500,000 brick were made.

FIRE BADLY DAMAGES KILNS

Fire recently caused damages estimated at about \$6,000 to \$7,500 at the plant of the Hankinson Brick Co., Augusta, Ga. The blaze originated in the kiln shed practically destroying the shed, injuring the kilns and damaging a number of freight cars nearby. The main buildings of the plant were saved.

ATLANTA PLANTS TO EXHIBIT WARES

Brick and clay products manufacturers with plants located in and adjacent to Atlanta, Ga., will have their manufactured products on display at a cooperative exhibit of "Made-in-Atlanta" goods to be held in that city September 18 to 23. Most of the Atlanta brick plants have already arranged for display space at the exhibition. This event is expected to help increase the demand for Atlanta made products.

FORM CLAY MINING COMPANY

Marseilles Clay Mining Co. has been organized in Chicago, according to a notice received, with capital of \$10,000. Mining and merchandising of clay, coal, and minerals are the activities to be carried on by the company. W. J. Considine, Fred H. Rettke and James Shoemaker are named as incorporators, and offices are located at Room 508, 133 W. Washington Street.

AMERICAN REFRACTORIES ANNOUNCE NEW PRODUCTS

Announcement has just been made by the American Refractories Co., of the addition of several new products to their line of refractories. Heretofore the American Refractories Co. specialized in the production and sales of silica, magnesite and chrome brick. The new line includes fire clay products of high grade.

Among these new products are a super-refractory, which they term "Arcofrax," and which they claim has a melting point of approximately 3,600 deg. F. It is claimed that this product is especially adaptable for use in oil burning furnaces, lead and brass furnaces and rotary kilns.

Another product is "Arco," which, it is claimed, has a melting point higher than that of any high heat duty No. 1 fire brick.

"American" is the name of a high heat duty fire clay brick which is made entirely of selected Missouri flint clay. It is made especially to withstand extreme thermo shocks and is said to be especially suitable for bungs, boiler settings, heat furnaces, and so forth.

"Arcofrax" is also obtainable in pulverized form and may be used for a protective coating and cement.

These products are being manufactured at the Danville, Ill., plant of the American Refractories Co., which just resumed operations.

BUILDING \$50,000 ADDITION

The National Tile Co. at Anderson, Ind., recently awarded a contract for building a large addition to its plant. The addition will be 85 by 485 feet and will be one story high, fireproof. The cost will be about \$50,000. The new addition will be large enough for 28 kilns.

GETS ORDER FOR 2,000,000 BRICK

The board of trustees of the Indiana Reformatory has accepted the bid of the Kurman Brick & Equipment Co., of Indianapolis, selling agents for the Brazil (Ind.) Clay Co., for buff mat-faced brick to be used in the construction of the new reformatory. The company bid \$27.50 a thousand and will provide nearly 2,000,000 brick. Five brick plants contested for the business. The red shale brick manufacturers bid from \$18 to \$21 a thousand. The fire clay brick manufacturers bid from \$27.50 to \$30 a thousand.

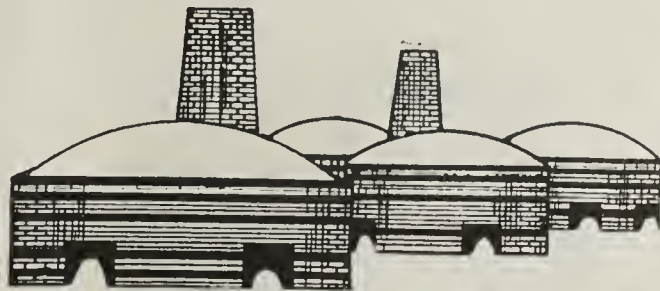
INDIANANS WANT STATE BUILDING CODE

The vast amount of construction done in Indiana during the past six months has brought forcibly to the attention of the trade the absence of a state building code and steps are being taken to press the question at the next session of the Indiana legislature, which convenes next January. Most of the larger cities of the state have building departments and building codes all their own, but other than those provisions that are made necessary because of rulings of the state board of health and the state fire marshal's office, there is a wide divergence in the provisions.

At the last session of the legislature a bill was introduced which provided for a state building commission, which would devise a state building code. The bill was introduced late in the session and not being an administration measure in a strict sense, was side-tracked at the last minute while the purely administration measures were rushed thru. Some of the most prominent members of the trade say there is a real need for such a bill and the only thing particularly concerning them is what will be in the separate provisions.

MAKES SIX-CELLED TILE

A six-celled tile which it is said to be no heavier than a two-celled block is being manufactured by the Lawrence (Kas.) Brick & Tile Co., at the rate of 12,000 per day. The blue shale from which it is made vitrifies at a lower tem-



RELIABILITY

The high quality material in Robinson Kiln Bands makes them totally reliable. They successfully withstand strains, and prevent sagging or bulging of your kilns.

Let us quote you on your requirements

FRANK H. ROBINSON

Dryer Cars and Clay Working Equipment
Factory and General Office, Pittsburgh, Pa.

"MINSTER" INDUSTRIAL LOCOMOTIVES

Assure maximum service with a minimum cost for upkeep.

2 to 8 ton capacities.

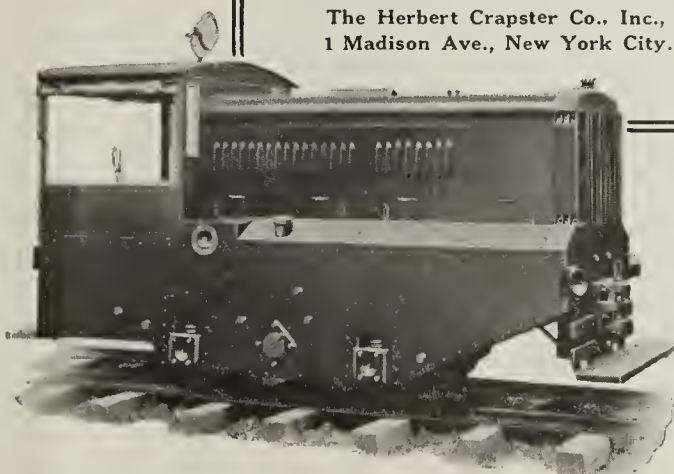
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**THE INDUSTRIAL
EQUIPMENT CO.**

510-516 Ohio St., Minster,
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Eastern and Export Department

The Herbert Crapster Co., Inc.,
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**HY-GRADE MANGANESE CO.
WOODSTOCK, VA.**

Miner
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Grinders

**Especially Prepared
for Brick Making**

DIESEL ENGINES FOR CLAY PLANTS

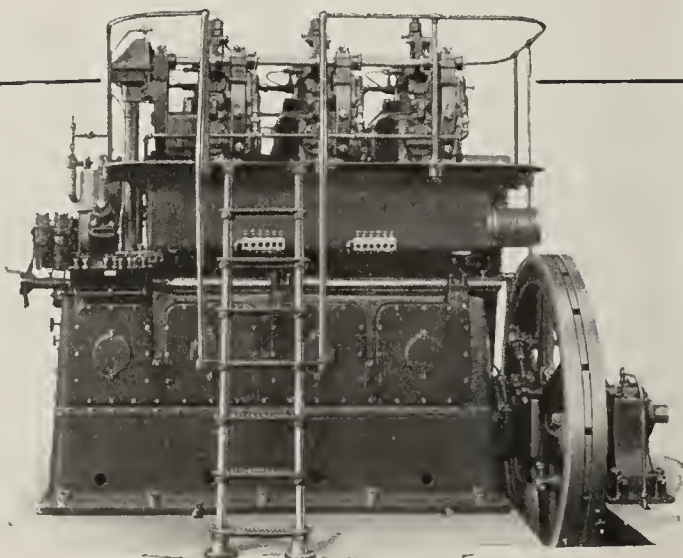
Economical—Power—Efficient—Operation—Convenient—Conservative—Complete—Easy to care for—Always ready and reliable.

This engine operates on cheap fuel oil. Fuel storage space decreased. A small amount of fuel makes a big amount of power.

Send for new catalog, either vertical or horizontal types furnished.

**THE HADFIELD-PENFIELD STEEL COMPANY
Bucyrus Ohio**

Formerly the American Clay Machy. Co.



perature than that found elsewhere in the state. It is used as a general purpose block; the surface is rugged so that it may be used for exterior work on residences and school buildings.

Most of the supply is sold to the lumber dealers who in turn sell a big percentage of it to the farmers. Formerly



Six-Celled Hollow Building Tile Manufactured by Lawrence (Kan.) Brick & Tile Co.

the farmers had great difficulty in maintaining a mortar bond, it is said: joints would leak in spite of them and ruin the building, but the six-celled tile eliminates that trouble. And for that reason it is in big demand.

ROADS MAY WITHDRAW CARS

The Louisville, (Ky.) Fire Brick Works is operating three days a week at both its plants, but that it is unable to ship much brick. The railroads are threatening to embargo everything but food, coal and livestock unless conditions change, in order to get things cleaned up a bit.

KENTUCKY PLANTS GETTING COAL

Up to Saturday, July 29, things were looking very blue for the Louisville brick industries, due to the fact that coal was getting very scarce and high, and it was not certain that the Government would place the brick people on the priority list. However, news was received to the effect that brick would be on the Class 1 list for priority. Several plants were about to close down for lack of fuel, when several shipments were received.

On July 22, prices hit the peak on coal when Western Kentucky jumped to \$11 and \$11.50 a ton and Eastern Kentucky to \$10, due to car shortage and gouging on the part of operators. Since then car supply has been better, and Washington has told the coal producers that they must abide by the \$3.50 maximum on mine run coal, or cars would be given only to operators who would abide by the price. Western Kentucky has tentatively agreed to the Hoover program, but is still arguing for \$4.50 maximum, due to stiffer production cost.

LOUISIANA PLANT INCREASING OUTPUT

The Guidry Brick Co. at Lafayette, La., has begun improvements at its plant which will double the capacity. New kilns, sheds and additional tracks for loading and shipping purposes are being constructed. Increasing demand for the Guidry product makes the larger output necessary.

TO MAKE IMPROVEMENTS WORTH \$35,000

Following a recent fire at the Williamsport, Md. plant of the Conococheague Brick Co., announcement has been made that improvements costing \$35,000 will be made, including three new kilns.

REACH BOTTOM OF COAL BIN

The coal strike is causing a number of the Baltimore brick manufacturers considerable worry. In several instances they have been hard pinched for a supply and are at a loss to tell how they will meet the situation unless there is an improvement. They are paying a greatly increased price for their coal now, which fact is making itself felt on the cost of production.

GRIFFISS PREDICTS TWO GOOD YEARS

"With the settlement of the mine and railroad strikes there is every promise for a most prosperous two years," said Warren Griffiss, general manager of the Baltimore (Md.) Brick Co. "We are selling a great deal of our Homewood Colonial face brick in New York, the largest order being for the Manhattan College group at Broadway and 42nd street. They have the widest color-range of any sand-finished Colonial brick."

RESTORE BRICK LAID IN 1809

Work is under way on restoring the front of the house occupied by the commandant of the Charlestown (Mass.) Navy Yard. The structure was completed in 1809, with exterior of plain common brick; from time to time, the surface has been subjected to elaborate coatings of paint of different colors, as deemed best, at the time, to suit the conditions. It is now intended to restore the front to its original appearance. The house was designed by Bulfinch, and was among the first buildings to be constructed on the reservation.

MAY BUILD PLANT AT SALEM, MO.

John C. Schwerner, president of the Schwerner Fire Clay Products Co. of Gerald, Mo., is contemplating the establishment of a similar plant at Salem, Mo., and with that end in view has been investigating the raw material in that vicinity, a report states. Mr. Schwerner reports that he is favorably impressed with Salem as a prospective location, since there is an abundance of the fine red clay suitable for building brick and hollow tile at that point, and fire clay could be shipped from Wesco. The Gerald plant of this company began operations two years ago, and is now running full time.

MISSOURI COMPANY TO OPEN SOON

The Festus (Mo.) Pressed Brick Co. is still selling stock in its company and at present writing there is about \$12,000 worth of the stock still unsubscribed. The company is capitalized at \$80,000 and because of its bright future it is believed that no trouble will be experienced in disposing of the stock. Under the management of Frank F. Davis the company is rapidly moving forward to the completion of its demonstration plant and this should be ready for operation within 60 days.

B. F. Canavera, inventor of the Canavera system of burning brick, thru an interpreter said: "The work is progressing very satisfactorily. All the chambers which will contain the green brick, 20 in number, are being laid as rapidly as the bricklayers can do the work. The plant will have a burning capacity of 36,000 brick a day or a few hundred more than 13,000,000 a year, which, within itself, will create a business of no small proportions."

JERSEY GETS NEW BRICK COMPANY

The Brick & Tile Co., Egg Harbor, N. J., has been organized with a capital of \$100,000, to operate a local plant for the manufacture of brick, tile and other burned clay products. The company is headed by John R. O'Neill, C. A. Lunneman and Alvin P. Risley, all of Egg Harbor.

INCREASES CAPITAL \$250,000

Reports received state that the North River Brick Co. of New York City has increased its capital from \$50,000 to \$300,000.

WESTON LOW DUMP CARS

MEET ALL DEMANDS—

LOAD EASILY—

TRAVEL FAST SAFELY—

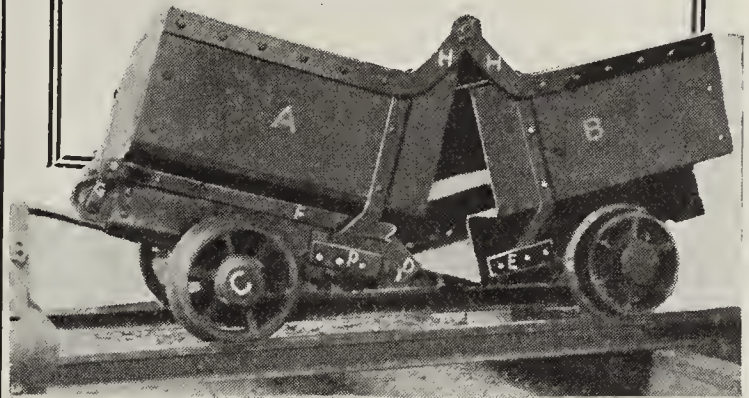
SAVE TRACK TROUBLES—

DUMP AUTOMATICALLY, ON THE GO, THROUGH THE TRACK, AT THE WILL OF THE HOIST MAN, AT AN ANGLE OF FROM 45 TO 100 DEGREES.

Ask for complete data today.
No obligation.

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Builder of Low Dump Cars
FORT DODGE, IOWA



RUBBER GOODS

for the Clay Industry

Test Special Rubber Belting
Indestructible Conveyor Belting

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CONVEYOR BELTING

Every conveyor belt of our manufacture is made to exactly meet the working conditions where it is to be used.

This enables us to furnish a belt correctly made as to number of plies, weight of duck and grade of friction—all important factors in belt making and on which the life of the belt depends.

Let us figure on your next conveyor. The experience of our belt experts may be of assistance to you.

Quaker City Rubber Co.

Mfrs. Mechanical Rubber Goods—Auto Tires and Tubes
PHILA. CHICAGO PITTSBURGH NEW YORK

HENDRICK SCREENS FOR ALL PURPOSES



**ELEVATOR BUCKETS
CONVEYOR TROUGH and FLIGHTS
STACKS, TANKS,
GENERAL SHEET and
LIGHT STRUCTURAL WORK
LIGHT AND HEAVY STEEL
PLATE CONSTRUCTION**

*Ask for your copy of the
Perforated Metal Handbook*

HENDRICK MFG. COMPANY CARBONDALE, PA.

NEW YORK OFFICE: 30 Church St.
PITTSBURGH OFFICE: 544 Union Arcade Bldg.
HAZLETON, PA., OFFICE: 705 Markle Bank Bldg.

DOUBLES CAPITAL STOCK

An increase in capital from \$25,000 to \$50,000 has been made by the Anderson Brick & Supply Co. of New York City, a report states.

STONECREEK PLANT STARTS

The Stonecreek (Ohio) Brick Co. with a modern plant has begun operations. The plant has a daily capacity of 50,000 brick.

INCORPORATE FALLS BRICK CO.

The Falls Brick Co., to be located at Cuyahoga Falls, Ohio, has been incorporated at Columbus, a report states. The capital is given as \$20,000, with W. C. Young and Fred E. Johnson as incorporators.

MAY BUILD GRAY BRICK PLANT

The Canton (Ohio) Brick Co. has taken options on land east of Newcomerstown, Ohio, and is contemplating the erection of a plant adjoining the Pennsylvania railroad tracks for the manufacture of a special gray brick.

HAS SEVERAL MONTHS' WORK ON HAND

The Ludowici Celadon Co., New Lexington, Ohio, largest roofing tile manufacturers in the United States, has enough orders ahead to run several months and is now receiving new orders daily.

INCORPORATE FOR \$5,000

The Medina Clay Products Co., of Chippewa Lake, Ohio, has been chartered with a capital of \$5,000 to manufacture clay products, principally brick. Among the incorporators are B. L. Cassady and H. A. Hall.

CAR SHORTAGE IN OHIO

A shortage of cars is now evident in practically all sections of Ohio and shipments of brick and other clay products from Ohio plants are being delayed to a considerable extent. This is due largely to the strike of the railroad shop men, which is disabling the motive power and rolling stock of many railroads.

CLAY COMPANY FORMS AT CANTON

The Brown Clay Products Co., of Canton, Ohio, has been incorporated with an authorized capital of 500 shares, no par value designated to manufacture and sell clay products of all kinds. The incorporators are Ira E. Brown, C. E. Smith, I. W. Little, L. M. Brown and D. E. Daniels.

OPEN NEW OHIO PLANT

Work will start shortly at the new Stonecreek brick plant near New Philadelphia, Ohio. Eight kilns recently completed are ready for operation. The company plans to erect eight more kilns soon. When completed the plant will have a capacity of 50,000 brick a day.

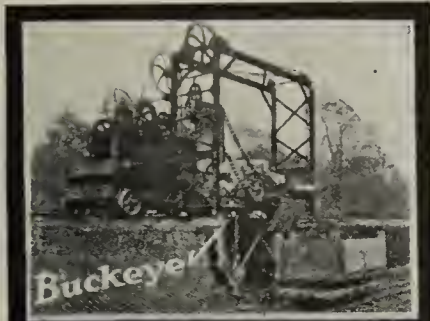
CANTON TO HAVE NEW PLANT

The Preston Clay Products Co., of Canton, Ohio, has been incorporated with a capital of \$20,000 by H. S. Williams, A. H. Elliott, F. E. Marsh and A. O'Leary. The concern will mine clay and make brick and other clay products.

ADDITION TO CLEVELAND FAMILY

The Advance Clay Products Manufacturing Co., of Cleveland, has been incorporated with a capital of \$100,000, to manufacture and sell clay products of all kinds and also deal in building supplies. Incorporators are John H. Belgrave, Arthur N. Stebbins, Jay M. Glick and R. L. Ammerman.

The
Buckeye
Clay
Digger



Prompt
Shipment

Better profits result when using the Buckeye because it so thoroughly mixes the clay while digging—resulting in fewer "seconds."

Ask for catalog about Buckeye Gasoline and Electric Clay Diggers.

The Buckeye Traction Ditcher Company

Manufacturers also of Buckeye Traction Tile Ditchers
FINDLAY, OHIO

Branch Sales Offices

New York
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Tower Simplicity

The Caldwell Tubular Tower is the simplest, most easily erected and most graceful tower on the market. Its construction—of steel tubing, rugged socket castings and steel sway-brace rods with drop-forged turnbuckles—results in a tower of practically no wind resistance that will serve you long and faithfully.

This tower is built for tanks from 1,000 to 40,000 gallon capacity. A prospective tower purchaser will do well to investigate the Caldwell Tubular.

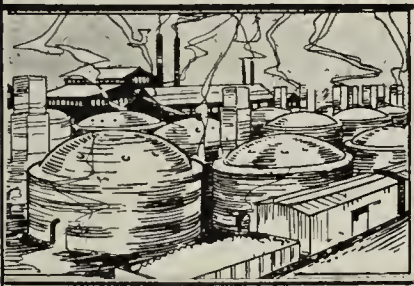
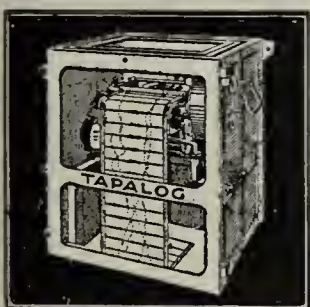
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W. E. Caldwell Co.

Incorporated
2380 Brook Street
Louisville, Ky.



Caldwell
TANKS
AND
TOWERS



PYROMETER ENGINEERING *for* BRICK PLANTS

All the large and small details are worked out to insure accuracy and reliability in service, and to permit maintenance without breakdowns and at minimum cost and inconvenience.

Wilson-Maeulen Co. have had the experience of equipping some of the largest brick plants in the world, and with complete success in every case. And the same care is taken on small installations.

Whatever your pyrometer requirements, just get our advice and estimate, based on 16 years' experience, which will be supplied without obligation.

Write today

Wilson-Maeulen Co.

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New York



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251



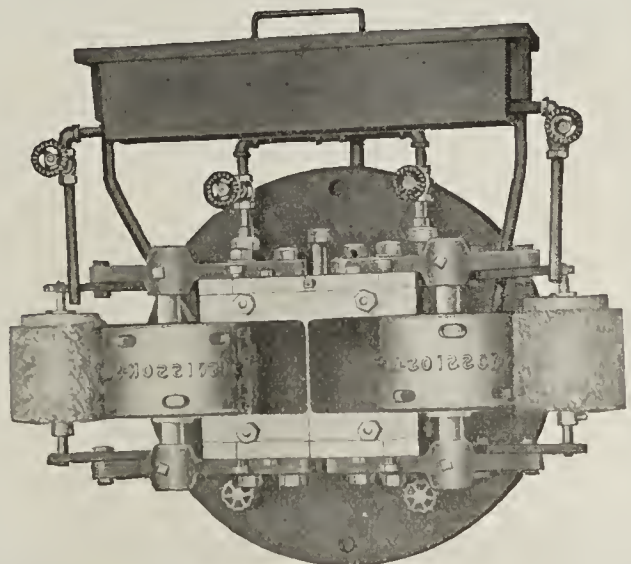
We Furnish Quality CLAY WORKING DIES

"This Die used by the Joseph Soisson Fire Brick Co., Connellsville, Pa., on our Roller Process Paving Brick system.

Repressing eliminated, abrasion test improved."

Louisville Machine Manufacturing Co.

LOUISVILLE, OHIO



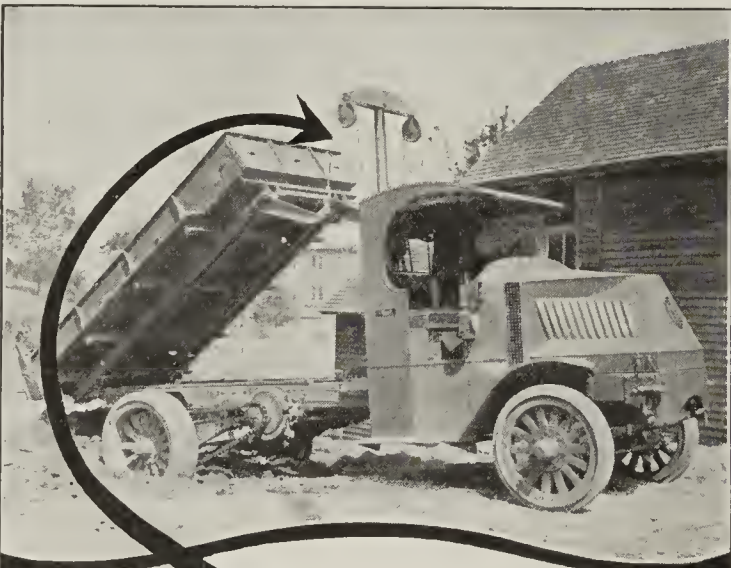
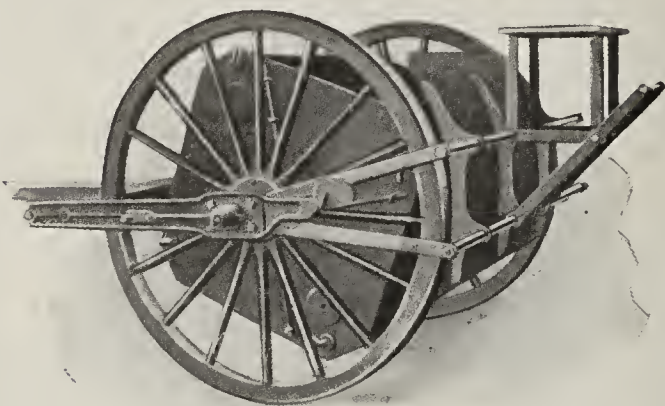
To Gather Surface Clay and Shale—

there is no cheaper or more efficient way than by using The Fernholtz Improved Clay and Shale Gatherer.

Actual tests and testimonials from brick, tile, and pottery plants in nearly every state in the Union verify our claim that with the use of this improved gatherer about **ONE-HALF OF THE COST OF CLAY AND SHALE GATHERING CAN BE SAVED.**

Write for full information regarding this machine

Fernholtz Brick Machinery Company
St. Louis, Mo.



WILLIAMSPORT

Telfax Tape Marked

WIRE ROPE

is standard equipment on all

Wood Hydraulic Hoists

Any manufacturer who uses Williamsport Wire Rope on his equipment is worthy of your highest confidence. He could give you much cheaper ropes and you would never know the difference by looking at it.

WILLIAMSPORT WIRE ROPE COMPANY

Main Office and Works: Williamsport, Penna. General Sales Office: Peoples Gas Bldg., Chicago

"The fastest growing wire rope plant in America."

QUEISSER OPENS NEW YARD

A new brick warehouse and yards to serve the Cleveland, Ohio, district was opened in that city by the R. L. Queisser Co. It is located at Woodland Avenue and East 89th Street, the parcel formerly occupied by the American Sewer Pipe Co., from which firm the Queisser interests have taken a long lease. The property adjoins the Nickel Plate Road.

Another warehouse, for the housing of specialties handled by the R. L. Queisser Co., will be built at an early date, according to R. L. Queisser, Jr., vice-president of the company. This also will be built along the same lines.

NEW WHITE FACE BRICK ON MARKET

A new face brick is being introduced in the Cleveland, Ohio, district by the R. L. Queisser Co., which supplies the brick for buildings in that territory. The material is the product of the Kittanning Brick Co., and will be known as the No. 15 rough vertical scratch. This is an absolutely white brick, something that certain architects in the Northern Ohio territory have been looking for for a long time, it is claimed. A feature of the material is that it will retain its whiteness and that it can be washed easily. First use of the material is being made in the construction of the new building of the Harper Creamery, in the East End of Cleveland.

CLEVELAND NOW TRAINING BRICKLAYERS

New bricklayers' school for Cleveland, Ohio, was opened this month. This was announced recently by officials of the local bricklayers' union and the Mason Contractors' Association of Cleveland after several conferences at the latter's headquarters in the Builders' Exchange. Cooperation by the Board of Education of the city is assured, according to Otto Best, who is working jointly with the Board and the Mason Contractors' Association. It is expected instruction will continue for at least 48 weeks during the year. Indications are that about 100 students will be enrolled at the beginning of the term. Finances for conducting the work have been promised by R. G. Jones, superintendent of schools.

CLEVELAND CONCERN BUYS PLANT

Following the sale of the Youngsville (Ohio) Brick Works to the Advance Supply Co., of Cleveland, Ohio, Elmer Sederburg, well known man of Youngsville, took charge of operations.

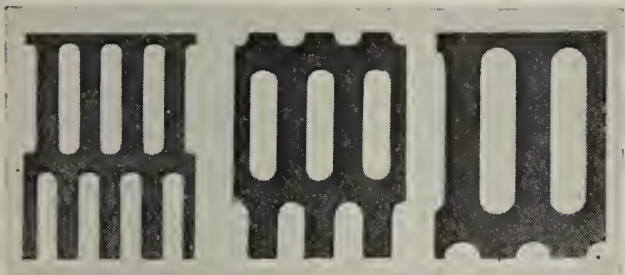
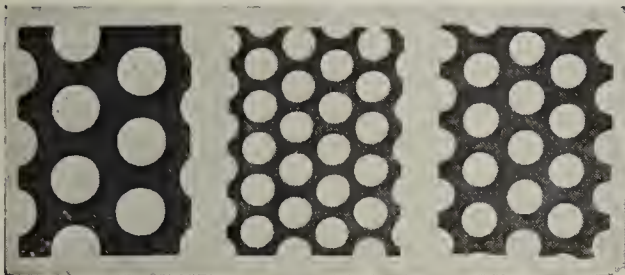
In the spring of this year the Advance Supply Co., which furnishes building materials, chiefly brick and builders tile, within a considerable radius of Youngsville, found that its capacity was insufficient to meet the brisk demand. The local brick plant which was standing idle offered the way out of the difficulty, and the plant was purchased. This plant now manufactures brick, but will very shortly be equipped to manufacture hollow tile also.

PLANTS GET COAL FROM WAGON MINES

A large majority of the face brick plants in Ohio are now closed down as a result of the coal strike, which has resulted in lack of fuel. Some few plants in the Marietta section which use natural gas for burning are operating as are a number of plants which are located near wagon mines in semi-union coal fields. Quite a few wagon mines are running and the product is being sold for the use of brick and other clay products plants as well as for local needs such as public utilities.

Prices of brick are still on the up-grade, and this has resulted in a slight falling off in the demand because of higher quotations. But on the whole the demand for most face brick and clay products is good and with reduced production reserve stocks are being depleted. Some of the yards are pretty well cleaned up and others are getting closer to the end of the stocks.

Perforated Steel Screens



For Screening Clay, Shale, Sand, Gravel, Stone and Cement

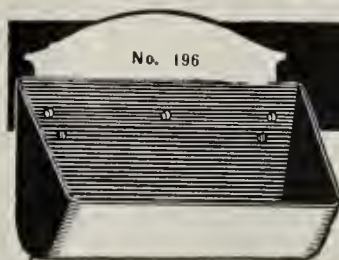
All sizes and shakes of holes in metal of proper thicknesses to give the best screening results.

Sheets furnished flat or rolled to shape for revolving screens.

THE HARRINGTON & KING PERFORATING CO.

635 N. Union Ave., Chicago, Ill.

NEW YORK OFFICE: 114 Liberty St.



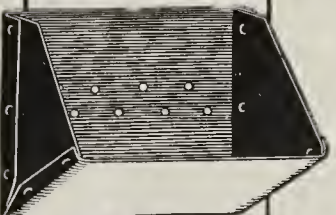
No. 196

Designed for speedy handling of damp materials. Low front and shallow depth permits quick discharge. Elevates at low angles. Will work in a boot.



No. 161

Stamped from a single sheet of steel. Rounded corners and bottom. Sharp "bite." High speed delivery.



No. 133

For mud, ore, coal, broken stone, etc. Elevates at low angles and without a boot.

SALEM ELEVATOR BUCKETS

Any order for Salem Buckets is promptly filled from a large stock. Special sizes are made up in record-breaking time. Such service is one reason why Salem Buckets have been leaders in their field for half a century. Send for price list.

MULLINS Body Corporation

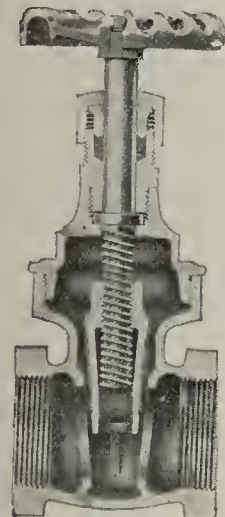
101 Mill St., Salem, Ohio

Successors to the W. J. Clark Co.



STRENGTH

—found in Jenkins Gate Valves



Actual service has proved the Jenkins globe shaped body the best in gate valve design. This shape permits a thorough, even distribution of metal and insures valves that resist, without distortion and leakage, the severe stresses of working pressure and expansion and contraction of piping.

Jenkins design provides for use of fewer parts, each of which is strong and heavily constructed. Standardization of manufacture insures interchangeability of parts.

Identify the genuine by the Jenkins "Diamond Mark" and signature.

Supply houses everywhere.

JENKINS BROS.

Sectional View Fig. 370, Jenkins Standard Brass Gate Valve.

New York
Montreal

Boston
Philadelphia

Chicago
London

Jenkins Valves
SINCE 1864



Did You Read What Some of the Satisfied Users Had to Say About the —

BAY CITY EXCAVATOR

in the July 25 issue of Brick and Clay Record? No two of these users have the same pit conditions, but the Excavator in all cases is digging soft clay and hard shale, producing more than enough clay for each plant's capacity at a minimum cost of fuel, time and labor. The BAY CITY EXCAVATOR is indeed the "Missing Link" in pit equipment for plants of 50,000 brick capacity.

Write for more particulars

The Bay City Dredge Works
Bay City, Mich.

The Gates Automatic Stoker Should Be On All Your Kilns!

■ ■ ■ ■

The June 13th Issue of
Brick and Clay Record
Tells Why.

Let us send you a reprint.

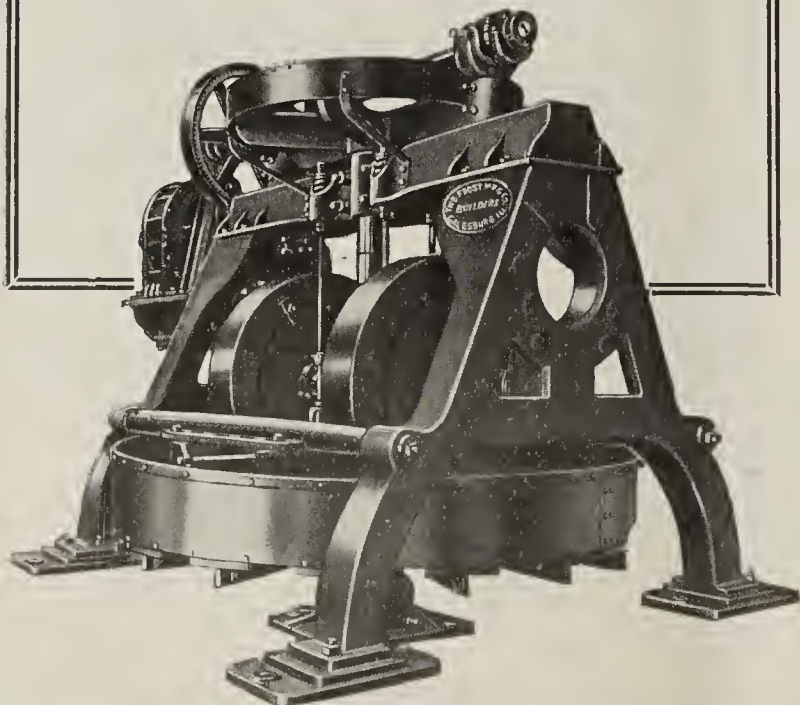
■ ■ ■ ■

**The
Clay Service Corporation**
138 N. LASALLE STREET
CHICAGO

BETTER QUALITY WARE

That is the result when Frost
Dry Pans are put on the job.

THE FROST MFG. CO.
GALESBURG, ILLINOIS



QUALITY ECONOMY SERVICE

PURCHASE OHIO SEWER PIPE PLANT

The H. C. Schneider Sewer Pipe Co.'s plant at Goshen, three miles from New Philadelphia, Ohio, has been purchased by William Greif, vice-president of the United Banking & Savings Co. of Cleveland, preparatory to be taken over by a company to be incorporated, in which S. P. Meyers and S. O. McFall of Uhrichsville Sewer Pipe Co. are leading officials.

The purchase price was \$146,000 for the plant and clay fields. The plant's last units have not been completed, altho it has been in operation for 18 months with kilns and modern machinery working. Work on the plant was started in 1918. It is said to be one of the most modernly equipped and active plants in the Tuscarawas clay district. Mr. Schneider retains his coal mines and fields in Tuscarawas, Harrison, Noble and Washington Counties.

NEW PLANT HAS 20 KILNS

Operation of a new brick and tile plant in Northern Ohio starts with the beginning of August. The new concern will be known as the Graham Clay Products Co., which takes over the plant of the United Brick Co. at Conneaut.

Bert J. Graham, well known in the clay working industry in the Central West and other sections, is president of the new Graham company. Associated with him are: E. D. Carter, president of the Pennsylvania Fireproofing Co., Erie, Pa., as vice-president; and O. W. Renkert, vice-president of the Metropolitan Paving Brick Co., Canton; E. S. Hanson, vice-president of the Central National Bank, Cleveland, and W. B. Stewart, attorney, Cleveland, as directors.

The Conneaut plant has been remodeled, new machinery added, and the whole brought up to the most modern in equipment and operation. There are 20 kilns, which makes it one of the largest plants in the Ohio clay working district. In connection with the improvements, the new company has acquired additional clay land nearby, which is estimated to give it a 20 years' supply. In addition to brick, interlocking tile will be made.

U. S. REFRACTORIES INCREASES CAPITAL

The United States Refractories Co., Mount Union Pa., has arranged for an increase in capital from \$300,000 to \$1,400,000, for proposed expansion.

SELLS McKEES ROCKS BRICK PLANT

David Shaw has sold the McKees Rocks (Pa.) brick plant located on Chartiers Avenue to the Federal Electric & Manufacturing Co. The new owners paid \$60,000 for the property.

GENERAL REFRACTORIES BUYS ANOTHER PLANT

The General Refractories Co., Pittsburgh, Pa., has acquired the plant and business of the Hayes Run Fire Brick Co., Orviston, near Lock Haven, Pa. The new owner will continue the plant in operation and will make a number of improvements. The company recently acquired the Pennsylvania Fire Brick Co., Beech Creek, Pa., and has negotiations in progress for the purchase of other similar plants in this same section.

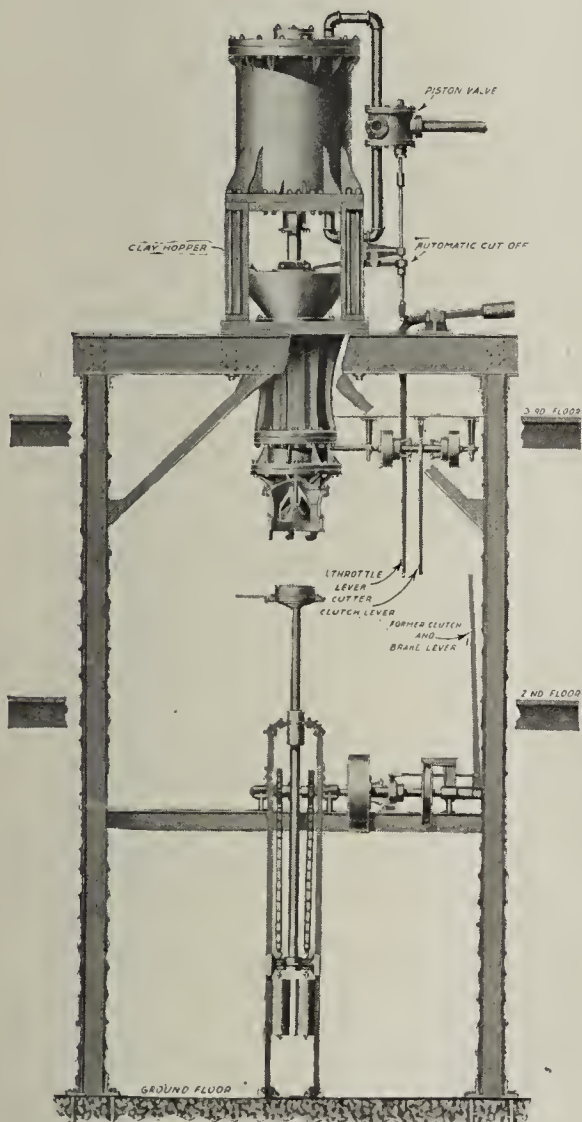
PHILADELPHIA BUILDING FAR BEHIND

Philadelphia builders have been put to thinking by the announcement that they would have to work 25 per cent. in excess of its normal rate for seven years, to make up its present shortage in building construction accumulated since the outbreak of the war. Col. Leonard P. Ayres, Cleveland (Ohio) Trust Co., puts Philadelphia's shortage at 8 years, one of the most serious in the East. The average yearly expenditure per person in Philadelphia is \$25.07,

The Modern Way To Make Sewer Pipe Is With— *The* **TORONTO SEWER PIPE PRESS**

Write for complete information

PAGES  244-245



Toronto Sewer Pipe Press

The Toronto Foundry & Machine Co.
Toronto, Ohio



OLD methods of drying are slow, space-greedy and wasteful—a drag-chain to production that must now be tuned to modern needs.

Leaders in the manufacture of all burned clay products have long since recognized the present-day necessity for efficient drying machinery and have effectively solved the problem by installing "Proctor" Dryers.

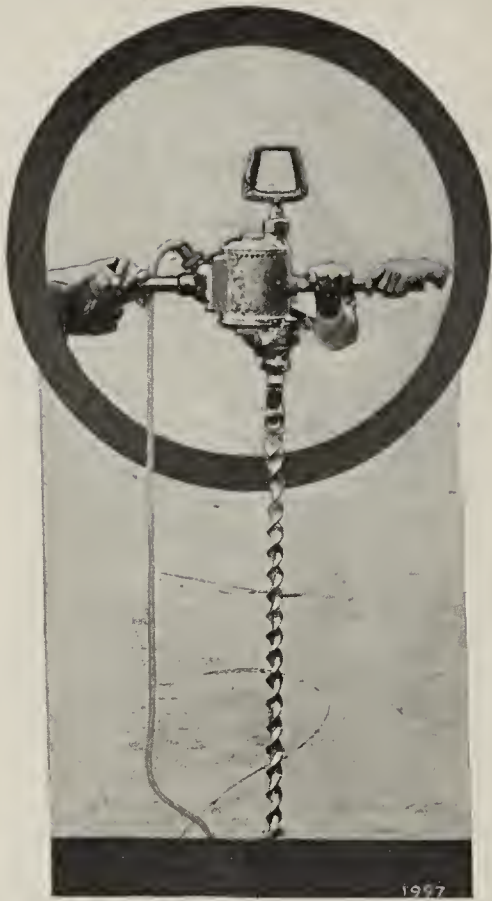
"Proctor" Dryers have made tremendous improvement over old systems—saving time, space and labor; giving a dependable flow of ware to the kilns; greatly increasing the percentage of perfect quality ware.

Different types of "Proctor" Dryers are giving wonderful results in drying Electrical Porcelain, Pottery, Sanitary Ware, Tile, Refractories, Face Brick and all other clay products—results that, on investigation, will prove the advantages of taking your drying problems to the oldest and largest organization of drying machinery specialists.

PROCTOR & SCHWARTZ, INC.
PHILADELPHIA



The largest plant and oldest organization in the world producing drying machinery exclusively.



Drill Shot Holes the Little Giant Way!

DO you know that Little Giant Electric Coal Drills drill shot holes fourteen times faster than is possible with a hand auger?

Through plastic, semi-plastic and flint clay, the Little Giant Electric Coal Drill illustrated, serving the A. P. Green Fire Brick Company, Mexico, Mo., drilled fourteen four-foot shot holes while one similar hole was drilled the hand-auger way.

Apply the speed and economy of Little Giants in your plant. Available for operation on D. C., or single, two or three-phase A. C. Address nearest Branch for trial drill.

Chicago Pneumatic Tool Company
Chicago Pneumatic Building, 6 East 44th St., New York
Sales and *Service Branches all over the World

* BIRMINGHAM	* DETROIT	* LOS ANGELES	* PHILADELPHIA	* SEATTLE
* BOSTON	* EL PASO	* MILWAUKEE	* PITTSBURGH	* ST. LOUIS
* CHICAGO	* ERIE	* MINNEAPOLIS	* RICHMOND	
* CINCINNATI	* FRANKLIN	* NEW ORLEANS	* SALT LAKE CITY	
* CLEVELAND	* HOUSTON	* NEW YORK	* SAN FRANCISCO	

R-18

BOYER PNEUMATIC HAMMERS - LITTLE GIANT PNEUMATIC AND ELECTRIC TOOLS
CHICAGO PNEUMATIC AIR COMPRESSORS - VACUUM PUMPS - PNEUMATIC HOISTS
GIANT OIL AND GAS ENGINES - CHICAGO ROCK DRILLS - COAL DRILLS

LITTLE

Coal

GIANT

Drills

which is far below the average. Building costs are steadily rising the reports said, but a prediction of a period of falling costs was predicted.

QUAKER PLANTS SHIPPING HOT BRICK

Brick shortage is becoming very pronounced in Philadelphia, and many contractors are working on a hand-to-mouth basis. This is laid to the tremendous increase in building activity in Philadelphia, this season.

There are about 15 brick plants in Philadelphia, with an annual capacity of 150,000,000 brick. The yards began the season with stocks of 3,000,000 or 4,000,000 brick each, but the demand has been so great that stocks have been entirely absorbed and the yards are sending out brick as fast as they can be burned.

The shortage is only temporary, seems to be the belief of some, while others think that with the rail and coal strikes, it will become worse before it gets better. If some operations now projected are to be completed this year, some think it will be necessary to bring in brick at added cost from yards outside the city.

McCRAW MAKING INTERLOCKING TILE

The McCraw Brick Co., of Gaffney, S. C., extensive manufacturers of common and face brick, has recently started the manufacture of interlocking tile at its Gaffney plant, working on a large order for the Denison Co.

CHATTANOOGA PLANTS ARE BUSY

A report received from a prominent brick manufacturer at Chattanooga, Tenn., declares that the brick companies of that city and adjacent territory are sold ahead for fully four months on an advancing market, and that every plant is going at capacity.

ERECTING NEW BUILDINGS

The Muddlety Valley Clay Products Co., Hookersville, W. Va., which was lately incorporated for \$10,000, will soon erect two sheds for the construction of tile and brick. Porter Herold, of Persinger, W. Va., is secretary of the company. Other incorporators are K. B. McCue and D. H. Fletcher, also of Persinger.

ADVERTISE BRICK IN NEWSPAPER

Brick manufacturers, wholesalers, jobbers and dealers, have a weekly opportunity to advertise their wares in a special page arranged by a leading Milwaukee newspaper. The center of the page is used to display the plans of the various types of homes. Around the editorial and descriptive copy are grouped the advertisements of building supply and allied dealers and manufacturers.

The first of the series of pages under the new plan of the newspaper contains as the center attraction an illustration and plan of an artistic, English face brick cottage. The merits of brick for the construction of homes are extolled in the descriptive copy explaining the plan of construction. Brick of varying color tones are discussed as being the best models for the illustrated home. The article is a good educational discourse on the merits of brick for home building.

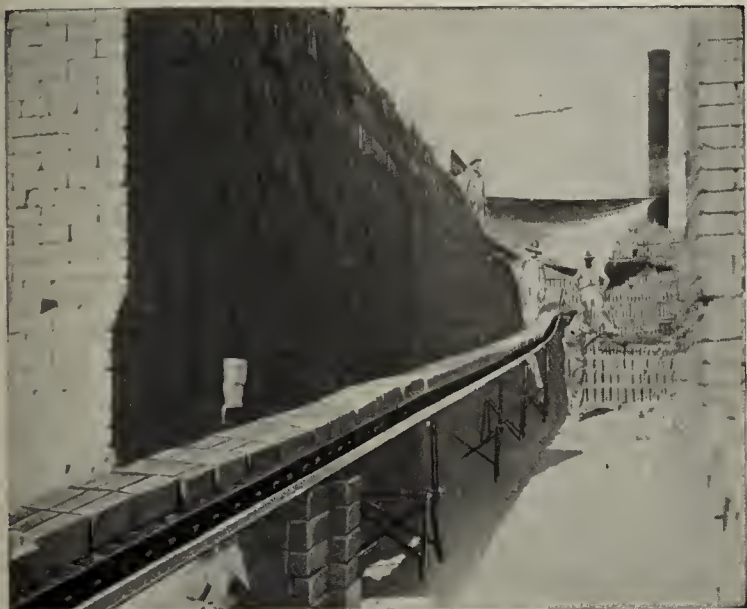
The Wisconsin Face & Fire Brick Co. is one of the several firms alert to seize this opportunity of advertising in a novel but compelling manner.

* * *

THE BUILDING SITUATION

(Continued from page 173)

The 1922 total for all classes passed the \$60,000,000 mark before July 30.



The Brickmaker's Friend

It would be a difficult matter to find a more fitting name to apply to Standard Ball-bearing Roller Brick Conveyors.

These sectional, untiring, ever ready conveyors have been tried and never found wanting in times of need.

Unlike the usual portable power driven mechanical contrivances, they never endeavor to shirk a day's or even a portion of a day's work by pleading, "out of order."

Operated by a perpetual power, **GRAVITY**, the sensitive ball-bearing rollers respond instantly and freely to the pressure of the load, and riding friction free, brick and all clay products are transported from car to pile or vice versa.

Our representative in your territory will gladly call and show you how effectively a few sections of these time- and labor-saving conveyors will operate in your yard.

Write Today

STANDARD
CONVEYOR COMPANY.
NORTH ST. PAUL, MINN.

New York
227 Fulton St.
Milwaukee
601 Security Bldg.

Chicago
549 W. Washington St.
Cleveland, O.
1108 Hippodrome Bldg.

Representatives in all principal cities

"HURRICANE" DRYERS



Drying Electrical Insulators

THIS TUNNEL DRYER was the means by which one large plant, manufacturing high tension electric insulators, cut more than a week from their manufacturing schedule. It now takes but 48 hours to completely and uniformly dry this ware. It previously required from ten days to two weeks.

Shrinkage checks are practically nil, as the drying conditions are always under automatic control. Breakage due to handling is eliminated since the ware is not touched from the time it leaves the green finisher until after it has been dried, and ready to be dipped. The insulators are handled on rubber wheeled trucks, being progressed through the dryer by an automatic pushing apparatus, at regulated speed. Even the heaviest pieces are turned out in excellent shape.

It gives complete satisfaction to know that you have dependable equipment that consistently turns out your ware in fine condition, precisely on schedule. Have You?

You can rely on "Hurricane" Dryers. Let us describe to you the possibilities of these machines at your plant.

Send for complete details, NOW.

The Philadelphia Drying Machinery Co.
3351 Stokley St., Philadelphia, Pa.



Facts, Figures and Bricks

FACTS that you deal with every day—such as temperatures, heat units and costs; figures that talk right out to you and give you something to get hold of—these make up the 72 pages of this thoroughly practical book on heat insulation for kilns, boiler settings, etc. A copy will be sent free on request to engineers, superintendents and managers who are concerned with saving fuel and reducing costs.

Have you ever made a study of heat losses? Surely it is a live subject in every plant today, and one well worth investigating. The loss from kilns by conduction and radiation alone frequently amounts to as much as 25% of their total heat, fully two-thirds of which can be saved by the use of Nonpareil Brick.

Other economies tending to reduce production costs are

More constant and uniform temperatures, and, hence, less loss in over- and under-burned and otherwise defective ware.

Shorter time to reach working heat;

Better working conditions around the kiln.

In many brick and pottery plants these economies are paying over 100% annually on the insulation investment.

Can you afford to disregard facts and figures like these? Write for a copy of the book, "Nonpareil Insulating Brick." A sample brick will also be sent at no charge.

Armstrong Cork & Insulation Company
149 Twenty-fourth Street Pittsburgh, Pa.

Also manufacturers of Nonpareil High Pressure Covering for steam lines, feed water heaters, etc.; Nonpareil Cork Covering for drinking water systems, brine and ammonia lines and cold pipes and tanks generally; Nonpareil Corkboard Insulation for cold storage and constant temperature rooms and for settling tanks; Nonpareil Cork Machinery Isolation for noisy machines, and Linotile and Armstrong's Cork Tile for floors in offices, residences, etc.

Nonpareil Insulating Brick
For Kilns, Boiler Settings, Etc.

Baltimore Operations Increase

Despite the carpenters' strike, Baltimore is going ahead with its building program, and there has been a heavy movement in industrial operations during the past fortnight. The weekly average valuation of permits is around \$750,000, including the old and new cities. Common labor is quite scarce in the city at the present time, and there is little first grade skilled help out of work. The demand of carpenters for a wage advance from 80 to 90 cents an hour has been refused.

Columbus Building Greater in July

An increase rather than a decrease is shown in the home building boom in Columbus, Ohio, during the month of July as compared with previous months this year and the corresponding month last year. During July the Columbus building department issued permits for 167 dwellings as compared with 162 in June of this year. The total building permits issued during the month was 493, having a valuation of \$1,540,200 as compared with 417 permits and a total valuation of \$900,690 for July, 1921. During the seven months of the year that have passed a total of 3,508 permits with a valuation of \$9,217,100 were issued as compared with 2,936 permits and a valuation of \$6,165,220 in the corresponding period last year.

Louisville Totals Still Big

Building permits issued in Louisville (Ky.) during the first six months of 1922 exceeded \$10,000,000, according to figures recently published by the city building inspector. This is greater than the total values of all building operations during any complete year in the history of the city. During the first half of July 275 permits were issued involving operations amounting to more than \$750,000. The inspector declared that the present boom is unprecedented and that indications are that it will continue well on into the tail end of the year. Louisville is now in the process of catching up, he said. Last year, June was the only month in which permits ran over \$1,000,000. This year, if July makes the mark, five out of the first seven months will have passed the million mark.

Chicago Labor Situation

The labor situation in the building industry in Chicago continues practically unchanged except for the fact that more construction work is being done under the terms of the Landis award. Trades in which open shop has been declared by the Citizens' Committee are having their ranks filled by men imported from other cities as well as local mechanics. The number of mechanics placed by the committee to July 28 totaled 16,835. Of these, 6,703 were carpenters, 2,515 laborers, 2,400 painters and 1,624 sheet metal workers. 949 plumbers were placed during the same period. According to reports sent out every contract in the \$25,000 or over class between July 7 and 14 went to a backer of the Citizens' Committee. Unions now on open shop basis will remain so permanently says T. E. Donnelly, president of the Citizens' Committee. Indications are that the controversy will result in a complete victory for the Citizens' Committee and the employers.

Minneapolis Faces Building Curtailment

Serious curtailment of building in Minneapolis will be pressing on the contractors unless relief from the coal and rail strikes come shortly, according to Clarence Gunn, secretary of the Minneapolis Builders' Exchange.

Altho there has been but little or no tendency among prospective builders to hold off the launching of major building projects because of threatened delays in certain materials, a number of jobs now under construction have been delayed for causes traceable directly to either the rail or to the coal strike. Steel, terra cotta and brick are the main items which builders are not certain of receiving promptly.

BRICK *and* CLAY RECORD

Established 1892. Now in its thirtieth year.

Copyright 1922
By Industrial Publications, Inc.

Entered as Second Class Matter January 2, 1911, at
the Post Office, at Chicago, Ill., Under
the Act of March 3, 1879.

Terms of Subscription
One Year—(26 Numbers)
United States.....\$3.00 Foreign\$4.00
Single Copies.....26c

Member of Associated Business Papers, Inc.
Member Audit Bureau of Circulations

Published Every Other
Tuesday by

Industrial Publications, Inc.

Telephone: Harrison 9462

407 S. Dearborn St. Chicago

Branch Offices
New York Cleveland Kansas City

Address all communications to home office

Chicago, August 22, 1922

Vol. 61

No. 4

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Standards of Practice for Business Publications

The publisher of a business paper should dedicate his best efforts to the cause of Business and Social Service, and to this end should pledge himself: 1. To consider, first, the interests of the subscriber. 2. To subscribe to and work for truth and honesty in all departments. 3. To eliminate, in so far as possible, his personal opinions from his news columns, but to be a leader of thought in his editorial columns, and to make his criticisms constructive. 4. To refuse to publish "puffs," free reading notices or paid "write-ups," to keep his reading columns independent of advertising considerations, and to measure all news by this standard: "Is it real news?" 5. To

decline any advertisement which has a tendency to mislead or which does not conform to business integrity. 6. To solicit subscriptions and advertising solely upon the merits of the publication. 7. To supply advertisers with full information regarding character and extent of circulation, including detailed circulation statements subject to proper and authentic verification. 8. To co-operate with all organizations and individuals engaged in creative advertising work. 9. To avoid unfair competition. 10. To determine what is the highest and largest function of the field which he serves, and then to strive in every legitimate way to promote that function.

Serving Business and Society

In the discharge of its primary functions, the industrial paper renders a direct service to industry. In the enormous gains which industry has made in the past 30 years, thru the application of science to business, and the use of labor-saving methods, the industrial press has been an active factor. Moreover, thru its contributions to industry, the industrial press is an important factor in the general economic situation of the country, but it is not very often appreciated that all society has benefited from these gains.

A striking example is the service rendered by the Railroad Gazette in the 70's. The transportation interests of the country acknowledge a great debt to it for its championship of the uniform gage for railroads, because at that time railroad gages varied from five feet to three feet, six inches. Many of the railroads opposed the proposed standardization. They could not see ahead to transcontinental railway service. Railroad Gazette could, and it hammered at this until finally the railroads saw the light. The great benefits both to the railroads and to the public are so obvious that it seems unthinkable that the idea could ever have been opposed.

Another example is the result of the movement by the automobile press some years ago, urging that automobile engineers agree on basic standards to permit the manufacture of interchangeable parts. This effect resulted in the standardization of automobile parts, and has

greatly reduced the original cost and the cost of repairs to the innumerable users.

It is interesting to recall in this connection another fight waged by an industrial journal in the railway field. This was the struggle against the proposal to build the Isthmian Canal across Nicaragua, a scheme that had been worked up for Congressional action by a group of skilled manipulators. Before the country—which, of course, means the daily newspapers—woke up to what was going on in Washington, the “grab” was discovered and it was also realized that a fatal engineering mistake was involved. The subject was at once discussed in the journal's pages and just as the final debate of the Senate was drawing to a close, a copy of the paper was placed on the desk of every Senator. Before the vote was taken a member from the Middle West, using this information as his text, urged reconsideration. He won, with the result that ten years later, after a hard fight, Panama was selected.

A glance back thru the files of many other industrial papers shows similar efforts to serve the public welfare, and it is just this sort of service, not so spectacular and far-reaching in its influence as the cases just related, but of the same character—that industrial journals are rendering all the time. They are the watchdogs of their industries. But beyond this they are the pathfinders and pioneers often in blazing the way to show new information, more constructive policies and a higher standard of business service.

The EDITOR'S CORNER

100,000 Voluntary Tile and Brick Salesmen

THERE ARE but few brick and tile manufacturers who have thought of the supply of bricklayers and masons in any other light than that of the necessity of a sufficient number of men to take care of all the masonry work for which there is a demand. The present need for trained men in the bricklayer trades, and the direct relation of the situation to the marketing of tile and brick, is becoming quite generally recognized in the industry.

As pointed out in the August 8 issue of this magazine, the problem of the rapidly becoming extinct bricklayer is one of the brick manufacturer's as much as anybody's. With no bricklayers to lay the product, there will be no use for the product, and hence no demand.

In a recent issue of Index, a statistical publication, there is pointed out the danger lurking in the mason trade in a more unreserved way. Quoting from same: "It is evident that unless the trade gets a great many more young men every year than it has been getting recently, brick construction will have to become obsolete because there will be nobody to lay the brick."

But there is another angle on this subject. Plenty of bricklayers would not only relieve present shortage, but would have an accelerating effect on the use of clay products. There is no doubt but that the present shortage of bricklayers is increasing the cost of masonry construction, hence more bricklayers will decrease construction cost and therefore increase its market possibilities. Furthermore,—and this has been lost sight of by many,—a hundred thousand more masons would make a hundred thousand more advocates of tile and brick construction.

Are you actively engaged in helping to relieve the bricklayer shortage?

✽ ✽ ✽

Interdepartmental Coordination Is Advisable

AN ARTICLE appearing in last issue, written by H. L. Longenecker, suggests a weak point common to many plants, namely, the lack of coordination between different departments.

Very often kiln setters, after having completed their task, never see the contents of that kiln again. Yet the man-

ner of setting brick has a very great bearing upon the success of the burn. Similarly, the burner, after he has completed the firing of the kiln, seldom sees it again until the next time the kiln is ready for burning.

A study of the results of each operation by those whose work influences the success of that stage of manufacturing is very valuable in the most efficient production of clay products. There has been too much segregation or specialization of activity, and not enough coordinated effort on many of the plants manufacturing clay ware.

If the subject of interdepartmental coordination were given greater attention, many establishments could not only increase the quantity of number one ware produced and improve the quality of product, but production cost could also be lowered.

✽ ✽ ✽

High Coal Prices and Shortage Will Continue

THE ARRANGEMENT made at Cleveland between independent coal operators and the miners for the resumption of coal mining was, as a whole, quite disappointing. It was practically a complete surrender by the operators.

We doubt that the larger operators will agree to the same settlement or that this arrangement opens the avenue of peace in the coal mining industry. However, even tho we may miss our guess on this, and the end of the strike be at hand soon, **it will not solve the nation's fuel problem.**

This portends a gloomy outlook, and may seem, because of its pessimistic tone, to be an extreme view. But our advice is from sources who are in position to know, and in whom we place great reliability.

The nation's business is facing a very critical situation. Tho the miners be back tomorrow, there is no possible chance for full production of coal, tho every man be working his best.

The critical part of the situation is the status of the railroads. But very few of the carriers are or will be in position to supply mines with sufficient cars to keep them operating steadily. Some roads, it is true, are better off than others but in general the situation is bad and as a whole there will

be a shortage, altho some sections will be served better than others.

It should be very apparent that we can expect fuel prices to remain high until next spring.

When a study is made of the frequency with which the coal supply has hampered the clay industry in the last decade, the question arises, would it not pay to use other fuel which, if it were consistently available, would be worth paying more for because of the insurance of steady plant operation? The problem certainly recommends the advisability of looking into the possibility of using fuel oil for burning clay ware, which may even be cheaper in many cases than coal as a fuel.

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How Much Should Prices Be Increased?

THE LETTER sent out by Franklin D. Roosevelt to all branches of the construction field is perhaps not as directly applicable to the clay industry as it is to some of the other branches. All industries furnishing materials that enter into buildings are not affected to the extent that the clay industry is as to increased production cost caused by the higher price of coal. Sand, gravel, paints, lumber, et cetera, do not have the price of fuel enter into their cost as do clay products.

We do not think that Roosevelt means to infer by his statement that the clay manufacturer who is paying \$10 to \$12 a ton for his coal for producing ware to fill contracts made at prices based on cost of production with coal at one-third this amount should not raise his prices to take care of increased costs. This obviously would be a preposterous suggestion. However, we believe that Mr. Roosevelt's basic idea is correct, and that to take advantage of the present situation to increase prices far beyond that required to meet the increased cost of production, is the wrong course to pursue.

As has been pointed out in several previous editorials published in this journal, and concurred in by many leading men in the industry, inflation over that created by increased costs is poor business policy. Any present gains made thru such policy would be more than offset later by the poor results from the effects it causes.

Who Will Make Your Clay Products?

Resume of Present Labor Problems — A Subject for Serious Consideration by Every Manager — Its Proper Solution Spells Success or Failure for Every Plant

CAN YOU answer this question—Who will make your brick and tile next year and five years from today? During the recent business depression due to the large number of unemployed, Congress, partly at the solicitation of the A. F. of L., passed a law restricting immigration until July, 1924. This law was intended to hasten the return to normalcy, but from indications that have been developing during the last few months, it will prove to be a boomerang to injure and delay rather than hasten that return. Reports of labor shortage have been increasing from all parts of the country since early in 1922. The coal and rail strikes have to some extent rendered this shortage less noticeable, but it is easy to see that as soon as these difficulties are settled the shortage will be more acute than in the past.

Labor Question Serious for Clay Industry

The restricted immigration vitally affects the clayworking industry, because it is one of the industries that must depend to a great extent on the influx of uneducated foreigners to fill the heavy unskilled jobs around the plant, and because the greatest shortage due to the immigration law will be found in the unskilled ranks. These views are concurred in by Babson and other students of labor conditions.

One proof of the seriousness of the labor situation is shown by the largely increased membership in the National Clay Products Industries Association, which is an organization formed to render the utmost service on labor problems to clay products manufacturers. This organization has increased 33 1/3 per cent. in membership since January, 1922, and now covers 350 plants. Its latest move has been in getting ready for distribution to its members 52 very attractive posters, each 24 by 36 inches, in four vivid colors, which cannot

be passed unnoticed by anyone. It is intended that one of these be placed each week on a bulletin board of the member plant, as each is constructive and educational. They treat of subjects calculated to create an atmosphere of interest and contentment among the men, and show them the evil effects and fallacy of being led to do anything inimical to the interest of themselves and their employer. A few of the subjects treated are: Neglectfulness, carelessness, thoughtlessness, extravagance, loafing, discontent, unfairness, idleness, faultfinding, rolling stones, waste, profanity, and surliness.

This type of constructive education and information has been needed in the clay products industry for several years, and will be welcomed with open arms by many.

This plant poster service is only one of the activities carried on by this association. Others include skilled employment service, advance knowledge of general labor conditions and also of special labor conditions in the industry, legal aid covering labor problems, bulletin service of items of interest to the industry, a register of open shop experienced clayworkers, and insurance against stoppage of production. This association indorses the American plan of individual contract, and most of its members use it.

Ohio Clay Plants Will Have Own Bureau

In addition to the above service, this association is frequently asked to assist non-members, and its correspondence files prove conclusively that clayworkers realize the opportunity they have of obtaining valuable assistance in their labor problems. It is helping now to install a self-supporting state employment bureau in Ohio for all clayworkers, whether members or non-members of the N. C.



Four of the 52 Posters Being Distributed by the National Clay Products Industries Association, for Bulletin Service.

P. I. A. The secretary of the state bureau will be in closer touch with local problems, and will be able to help on any labor question in Ohio. At the same time he will be backed and assisted by the national organization.

Recently a questionnaire on labor problems in Ohio brought in answers from 60 per cent. of those addressed. This is very exceptional, as anyone experienced in mailing questionnaires can testify, and shows the widespread interest in labor problems, among clay products manufacturers.

Opposed to the open shop principle of the N. C. P. I. A. is the United Brick & Clayworkers Union. While this union has been very active in the past, and has wrought untold havoc to many clayworking plants, it is planning on greatly increasing its activities and influence. Its chief activities at this time are in New Jersey, Pennsylvania, Ohio, Iowa, Illinois and Indiana. The commissioner of the N. C. P. I. A. states that this labor union is affiliated with the American Federation of Labor, and has the powerful assistance of that organization and of its many members.

These facts bearing on an item which represents a very large percentage of the cost of ware justifies thoro consideration by every clay products manufacturer if he does not wish his plant closed down because of labor trouble, or because his cost of production rises above the price he can receive for his product. In the same connection it is suggested that the installation of all possible labor-saving equipment be studied more carefully than ever.



BORROWS \$4,000,000 FOR HUGE MERGERS

What was perhaps the largest merger in the clay products industry in the last decade was reported as having taken place recently when the General Refractories Co., Oliver Building,

Pittsburgh, Pa., acquired the property of the Standard Refractories Co., Claysburg, Pa. The purchase price is said to involve a consideration of about \$1,500,000. The Standard Refractories Co. was organized in 1914 with Thomas N. Kurtz as president and general manager, and is one of the most modern silica brick plants in the country. During the war period it was operating 18 kilns and producing in the neighborhood of 120,000 nine-inch equivalent silica brick per day.

From this time on it will be operated in conjunction with the General Refractories Co. plant at Sproul, which is but a mile away, and will form one of the 12 units of the company in Pennsylvania, Kentucky and Illinois. These plants have an annual rate of production of 247,000,000 refractory brick and shapes.

To carry out the details of expansion which includes the merger of several refractory properties in addition to those recently acquired, the General Refractories Co., thru its fiscal agent, Lee, Higginson & Co., is disposing of a bond issue to the amount of \$4,000,000. Governor William C. Sproul of Pennsylvania is president of the General Refractories Co. The capitalization of this company represents net assets of over \$12,000,000.



MOST OF SPACE TAKEN FOR CHEMICAL SHOW

The Eighth National Exposition of Chemical Industries will be held this year at the Grand Central Palace, New York City, September 11 to 16. Included on the program are some of the best industrial films that have ever been taken, according to the management. A number of films have been obtained thru the cooperation of the United States Bureau of Mines and other Government bureaus of the United States and Canada. Nearly all the exhibit space has already been taken.



Roosevelt Warns Same As Brick and Clay Record

THRU the courtesy of the American Face Brick Association, the following letter written by Franklin D. Roosevelt, late Assistant Secretary of the Navy and now President of the American Construction Council, and addressed to Eben Rodgers, president, is reprinted in full below. Its contents are of a nature that will interest every manufacturer of a commodity which enters into construction work. The letter states:

My dear Mr. Rodgers:

The extraordinary postwar era of prosperity which came to a peak in 1920 and was characterized by mounting prices, advancing wages and increasing volume of business went so far that the slump which followed it in 1921 was inevitable. Again, the great demand for products and especially construction has started us on an era of higher prices and higher wages. Inflation seems imminent; will reaction follow?

Railroad ton mileage in 1920 reached a point 5 per cent. higher than the record figure of 1918 caused by war-time exertions. Construction undertaken in 1920 exceeded any records previously set. From the spring of 1919 to the peak in 1920, wholesale prices based on 1913 as a level increased from 193 to 247 and building materials from 169 to 300. "The Buyer's Strike" followed; business entered upon an extreme depression, and wholesale prices dropped back to 138 and building materials to 155.

The present revival of business activity is just cause for rejoicing. Carloadings, exclusive of coal, for 1922 have so far broken the records in 1920, but this revival is accompanied by disquieting symptoms. Wholesale prices have risen again from 138 to 150, building materials from 155 to 167. Wages did not go up as fast as prices in 1919 and 1920, but they

gathered momentum as they went and continued upward after prices began to come down. Some reductions from the peak have been made, but again there is a tendency to advance.

Expressed in simple terms this means: If we are to keep construction activity steady and stable for the next five years, in view of the volume of work which should be done, we must consciously avoid periods of sky-rocketing either in prices or wages. While the demand for the moment may make possible unusual prices and wages, it will only prove a boomerang if the public decides to stop buying again. Isn't it better to forego temporary advantage if by so doing industry is kept moving at a steady, stable, healthy pace continuously?

I urge your thoughtful consideration of these suggestions and request your cooperation in helping to maintain stability in the construction industry.

Very truly yours,
(Signed) Franklin D. Roosevelt,
President.

This letter is very timely and contains an excellent thought warranting the consideration of every clay manufacturer. Moreover, it is along the lines of the thoughts expressed in editorials printed in the May 16 and May 30 issues of Brick and Clay Record.

Mr. Roosevelt will undoubtedly be glad to know that the clay products industry as a whole has earned the confidence and good will of the public because of its excellent policy against price raising, and the concurrence of the thought expressed by Mr. Roosevelt in his recent letter, as shown by letters received by Brick and Clay Record from leaders in the industry, excerpts of which were published in the June 27 issue of Brick and Clay Record.

Knacks in Setting Up-Draft Kilns

This Is the Fifth Article of a Series on Setting and Burning of Up-Draft Kilns — Explains Special Features in Setting Furnace Kiln

Elias Petts

SETTING BRICK in up-draft furnace kilns presents quite a different proposition from setting in either the scove or the Dutch kiln, and yet the principle is the same, or, as the Irishman says, the methods are exactly alike, only there is a great deal of difference.

The main reason for this is that no coal or wood enters into the arch of the kiln, but is all burned in the furnace outside the wall, and only the heated gases pass into the arch. It will be seen, therefore, that the brick must be set so as to give an even distribution of these same gases thruout the kiln. If this is not done, it is impossible to get an even burn, as you cannot put more fuel into the center or sides of the kiln as is done in the case of the kilns where the fuel is thrown into the kiln proper. It is, therefore, necessary to set the arches so as to make the kiln heat thruout as uniformly as possible, thus saving time, fuel and trouble in the burning.

First, let us consider the arch opening itself. In this type of kiln it is best to have the arch opening about 11 inches wide and nine straight courses high with four overhangers. This makes a long narrow arch, which tends to carry the gases to center of kiln much better than a wider arch would do. This is very essential in a kiln of this type, owing to the fact that the center of the kiln is the farthest removed from the source of heat and must, therefore, be given every advantage so that it will heat uniformly with the rest of the kiln.

Size of Benches and Flues

The usual distance from center to center of the eyes or fire flues measured along the walls of these kilns is 40 inches. This gives three and one-third brick benches, and leaves about 11 or not over 12 inches for the arch, depending, of course, upon

the size of the green brick when set in the kiln. If the kiln walls have been properly constructed, the distance from the edge of corner eye to the end wall should be $12\frac{1}{2}$ to 13 inches. In setting this half-arch at either end of the kiln, it is very important to omit any stretcher in this straight bench. It is better to run up a single brick header, about two inches from end wall, consisting of six courses set in pairs, and the remaining three courses, namely, the third, sixth and ninth, tight courses, as shown in Fig. 1. The only brick which should go against the end wall up to this height are a few dovetailed in the third and sixth courses to steady the work, and every other brick in the eighth course. Upon the dovetailed brick in the eighth course, set one stretcher next to the wall on every two of them. This will leave an opening between the ends of the stretchers of about three inches. Against these stretchers set the ninth or last straight course, which is tight, and upon which the overhangers (of which there are four on each side of the arch, as shown in Fig. 2) start.

Setting Overhang Courses

The object of having the stretchers behind the ninth course 3 inches apart is to permit the heat which passes between the pairs in the straight bench into the two inch space behind it, to pass readily up the end wall, and care must be taken to leave as much of this open as possible in filling in behind the overhangers on this half arch, when setting the tenth to thirteenth courses. A little care here means that you can burn the end arch just as well as any other in the kiln. In many instances, the fire will appear on top of the kiln across the end walls before it does on any other part of the kiln.

Having set the nine straight courses, we now proceed to put

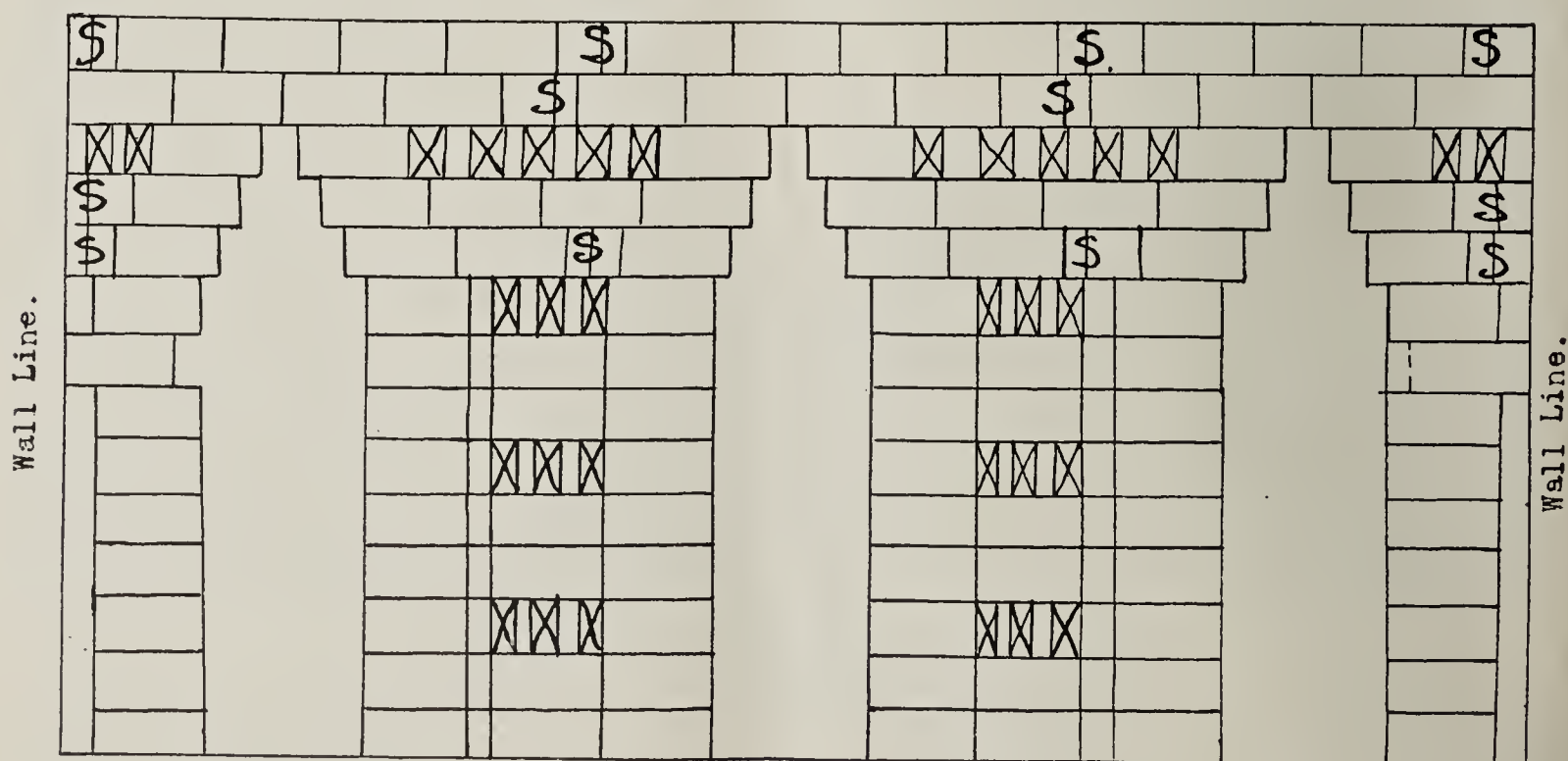


Figure 2.

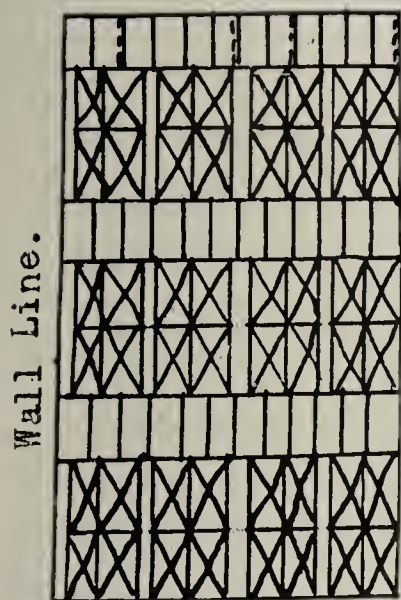


Fig. 1.



Fig. 3.

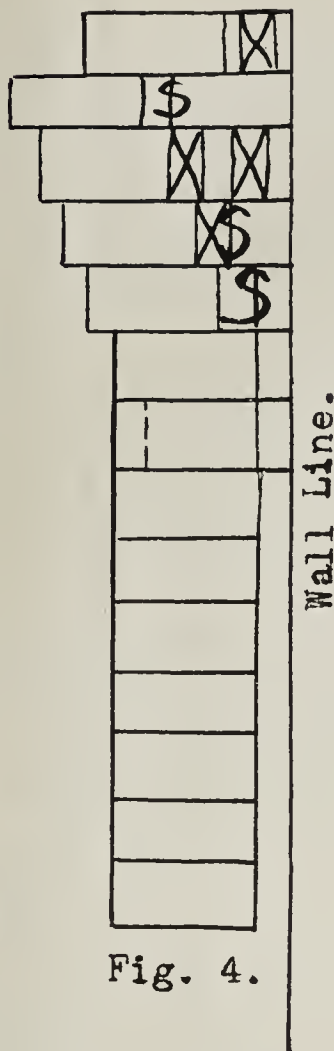


Fig. 4.



Fig. 5.



Fig. 6.

on the overhangers on this half-arch. These should overhang about $1\frac{1}{2}$ inches each, or sufficiently to span one-half the distance across the arch opening. Behind the first and second overhangers you will have to set what is known as skindle courses between the overhanger and the wall. These two skindle courses should be reversed so as to set across each other, and care must be taken not to cut off the gases by making these courses too tight. Make the third overhanger tight, and fill in behind it with stretchers. Here again care is very necessary; sometimes the space behind this overhanger is too wide for two stretchers, but not quite wide enough for three without putting them very close together—if three stretchers are required, set them as shown in Fig. 3.

Now put on the fourth overhanger, and if space will permit, set a header against the wall in pairs, and then set the fourth overhanger straight against these pairs. If, however, your brick are too long and this method would make your last overhanger too long, you can obviate this by setting a skindle course behind the fourth overhanger, as shown in Fig. 4.

On top of the last overhanger, which is set in pairs, set a row of headers in pairs directly over the overhanger, but covering only one-half of same, letting the other half project back over the skindle course, that is, make the lengthwise joints on the fourteenth course come directly above the middle of the brick in the thirteenth course. This forms the tie for your binding course when you come up with the next arch. Behind this last header, you will have a space of three or four inches; set a stretcher on this, but do not try to crowd two stretchers in this space, or you will make it too tight and thus spoil all the good work you have done below by preventing the heat from going up the end wall.

Omit All Stretchers Next to Outside Walls

Right at this point let me impress upon you the importance of never letting a stretcher go against the wall in the arches or around the walls anywhere. Why? Because a single stretcher set against the wall for five feet, ten feet, or the

whole length of the kiln, would be a $2\frac{1}{2}$ inch solid block against the gases, whereas if only the headers go against the wall you have a small flue between each header directly against the wall.

We now come to the full bench, which as we have stated, consists of $3\frac{1}{3}$ brick or 3 headers and 1 stretcher. We first divide this between the first and second eyes of fire openings in the wall, after which we proceed to run up the first nine courses next to the one-half arch described above. This goes up nine courses straight, six courses being set in pairs about 1 inch apart, and the remaining three—the third, sixth and ninth courses—tight.

Now set the first two overhangers in pairs, about 1 inch apart and directly over each other, except that the second overhangs more than the first. Then set the third overhanger tight, and the fourth, in pairs, and directly against the fourth overhanger in the one-half arch, thus closing the arch; then, the binding course directly on top of the last overhanger. You can readily see that this gives the fire gases a clear opening into the body of the kiln.

Now bring up your middle nine inches and the stretcher, putting the stretcher next to the nine inches previously put up, and run it up tight for nine courses. This will confine the gases in the first arch, and thus help to burn that arch equal to the rest of the kiln. The middle nine inches should be run up against this stretcher, with the first, second, fourth, fifth, seventh and eighth courses set in pairs about 1 inch apart, and the third, sixth and ninth set in stretchers. Then set in pairs behind the first, second and fourth overhangers, also the binding course and set stretchers behind the third overhanger, which is tight.

Finishing the Bench

You are now ready to bring up the other nine inches of this bench, which is set just the same as the first nine inches, except the pairs in the loose course must be set directly against the pairs in the middle bench, the tight courses coming against

the stretcher courses in the middle bench. Then put on the overhangers as before.

Every arch should be set in the same manner, with the following exceptions:

The stretcher in the middle bench should be set the same, except the two bottom courses, which should be set about 3 inches apart, and the rest tight. Keep this stretcher behind the middle nine inches until you come to the last arch; then change it, and set it between the middle nine inches and the last nine inches, where it will serve the same purpose as in the first arch, that is, confine the fire to the last arch.

In all the arches, except the first and last, set the binding course over each arch tight, beginning about three feet from the wall on each side of the kiln, and run it tight for about six feet; then leave the center open. This is a great help in getting the fire to the center of kiln.

In setting a kiln of this type, always set a little more loosely around the wall than the rest of the kiln, and the center should never be too tight.

There is another thing which has been used with success on this type of kiln to get the heat to the center. Pull back the overhangers in the center of each arch so as to leave about a 4x4 inch opening; then set a flue over this opening, and carry it up to within about six or eight courses of the top of the kiln. Do not close it there, but set over it in the usual way. This is about a 6 inch flue, and is formed by setting the brick on edge, as shown in Fig. 5.

Completing the Setting

Kilns of this type may be set from forty to fifty courses in height, depending upon the nature of the clay and the condition of the brick when set.

The usual way of putting the platting on these kilns is to run one course across the last row of the setting, each row of platting being about one inch apart, the second and last courses to be placed across the first, of good square brick and laid tight.

Referring again to the accompanying sketches, Fig. 1 shows the nine straight courses of all the arches next to the fire. It also shows by dotted lines two of the loose stretchers which are set behind the ninth course; and Fig. 6 shows how the eighth course is dovetailed against the wall to support the loose stretcher.

In Fig. 2 are shown three arches. The two outside arches show the manner of setting each end arch of the kiln, and the middle one shows the manner of setting all the rest of the arches. Also note that behind the binding course next to end walls, a skindle course is shown, instead of a single stretcher as in Fig. 4.

Fig. 3 is fully covered in the proper place in this article, and shows three stretchers with the ends about two inches apart.

Fig. 5 is a small section of the six inch flue referred to, and is to be set over center of each arch. All courses marked "S" are skindle courses.



JULY FOURTH BIG MONTH OF BUILDING

July was the fourth consecutive month of unprecedented building activity, according to the F. W. Dodge Co. Contracts awarded during the month in the 27 Northeastern States amounted to \$350,081,000. This was a 2 per cent. increase over June and a 65 per cent. increase over July, 1921. It is greater than any previous monthly total except the record figures of April and May this year. The July increase was in central western territory, eastern districts having shown slight declines.

The July figures brought the total for the first seven months of this year up to \$2,041,065,000, an unprecedented figure, 60 per cent. greater than that for the corresponding period of 1921.

July showed a levelling tendency not only as between localities, but as between classes of construction. There was a decline in the volume of residential construction from June, which was more than equalized by increases in industrial and public works construction. The figure for industrial plants, \$31,882,000, which was 9 per cent. of the month's total, was the largest for this class since November, 1920. Residential construction, however, still maintains the lead, having amounted to \$108,951,000 in July, 31 per cent. of the month's total. Public works and utilities amounted to \$79,162,000, or 23 per cent. of the total; business buildings, \$44,020,000, or 13 per cent. of the total; educational buildings, \$40,690,000, or 12 per cent. of the total.

Contemplated new work reported during the month amounted to \$508,222,000, compared with \$350,081,000 for contracts awarded.



SMALL CHANCE OF PRICE REDUCTION

Prospects for a successful liquidation of building construction costs, as seemed likely of realization two months ago, are fading in the eastern section of the country, according to a Dow report dated August 5.

This report states:

"In the face of a back-log of prospective construction of increasing proportions, prices are advancing, labor is becoming more difficult to obtain, sources of building material supply are becoming more and more behind in their shipments while the percentage of increase in June building plan filings in 20 cities showed a gain of 236 per cent. over the identical month last year, a gain of 100 per cent. over the nine year average for the same month and a gain of 219 per cent. over the total for May of this year.

"The situation has become so acute in the matter of providing sufficient labor to man the building operations looming up in the immediate future that the Building Trades Employers' Association has contributed \$5,000 and pledged \$3,000 additional from among its members to make possible the training of apprentices so as to meet the building labor requirements of the future.

"Recently the firm of James Stewart & Co., building contractors, received an offer from a Florida brick manufacturer to ship 5,000,000 brick from that state to dock, New York, at the same price per thousand wholesale that was being charged for brick manufactured 50 miles up the Hudson River, namely, \$20 a thousand.

"A glance over current building material price lists shows more price advances than price reductions, altho this was the time when, had there been no rail or coal strike, building material costs would have begun to show signs of liquidation.

"The result of this turn in the building construction industry is to create a back-log of business that will establish somewhat unprecedented situations in the building industry of the eastern section of the country this autumn and winter. Every building material manufacturing plant will operate as late into the fall as it possibly can and, where all year-round production is possible, there will be capacity operations.

"If even a fraction of the building construction work now being developed that otherwise would be starting for consummation this autumn, proceeds next winter, there will be building materials enough consumed to prevent the accumulation of any great reserve supply next spring. This situation is being foreseen by contractors who are placing contracts ahead as far as the manufacturers are willing to accept them and the latter, not desiring to commit themselves too seriously in the light of possible heavy winter weather conditions, are beginning to put a brake upon this kind of business."

Business Briefs and Trend

EMPLOYMENT IN INDUSTRIES INCREASING

The United States Department of Labor reports that a shortage of labor exists in 22 out of 37 states covered in a recent survey. Eleven states report supply and demand about equal and in four there is a surplus of labor due to the mine and railroad strikes. The Bureau of Labor Statistics reports that of 12 representative manufacturing industries eight showed increases and four decreases in the number of persons employed in June, 1922, compared with June, 1921. Industries which showed increased employment were iron and steel, 32 per cent.; car building and repairing, 3.5 per cent.; automobiles, 21.1 per cent.; paper making, 19.1 per cent.; hosiery and underwear, 16.8 per cent.; leather, 14.5 per cent.; men's clothing, 1.8 per cent.; and boots and shoes, 1.0 per cent. Decreases were shown by cotton manufacturing, 25.1 per cent; silk, 19.3 per cent; cotton finishing, 14.8 per cent.; cigar manufacture, 8 per cent.

FIRST BRITISH COAL ARRIVES HERE

The first large cargo, 10,000 tons, of foreign mined coal to reach New York as the result of importers' efforts to stave off a fuel famine among public utilities corporations was brought

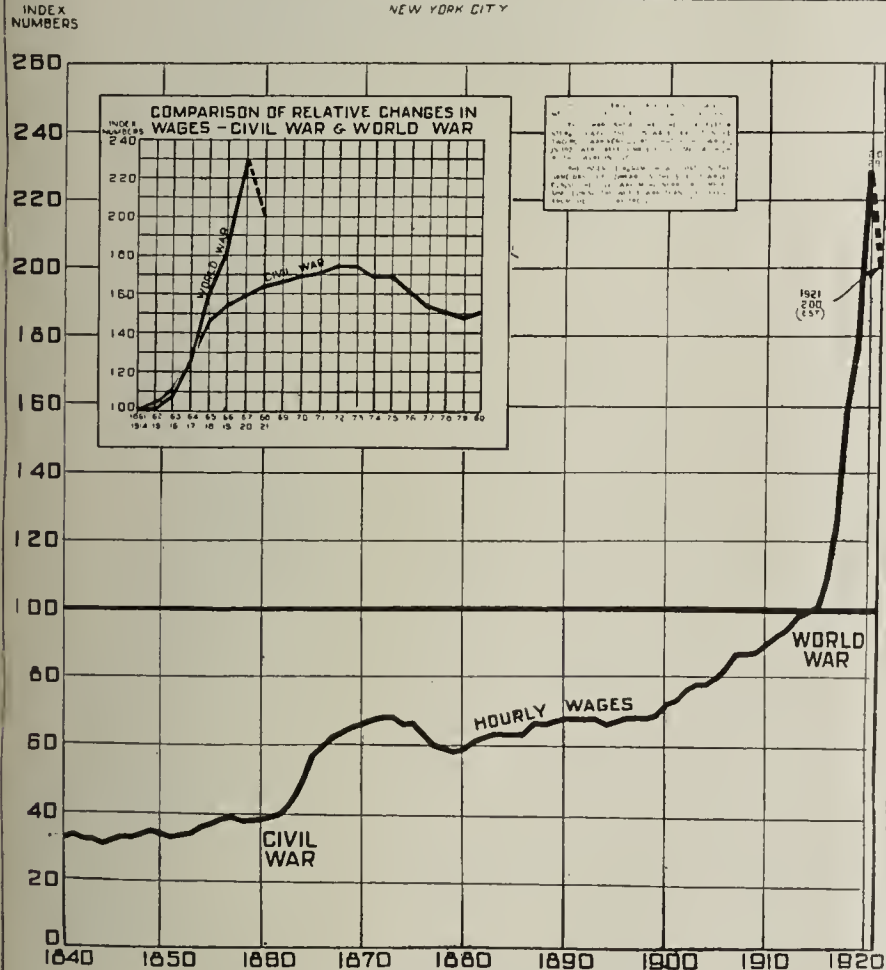
in August 8, by the Italian steamer Cherca from Barry, Wales. From now on a steady stream of British mined coal will arrive at that port, it was announced.

WILL CONSIDER TWO AND THREE SHIFT DAY

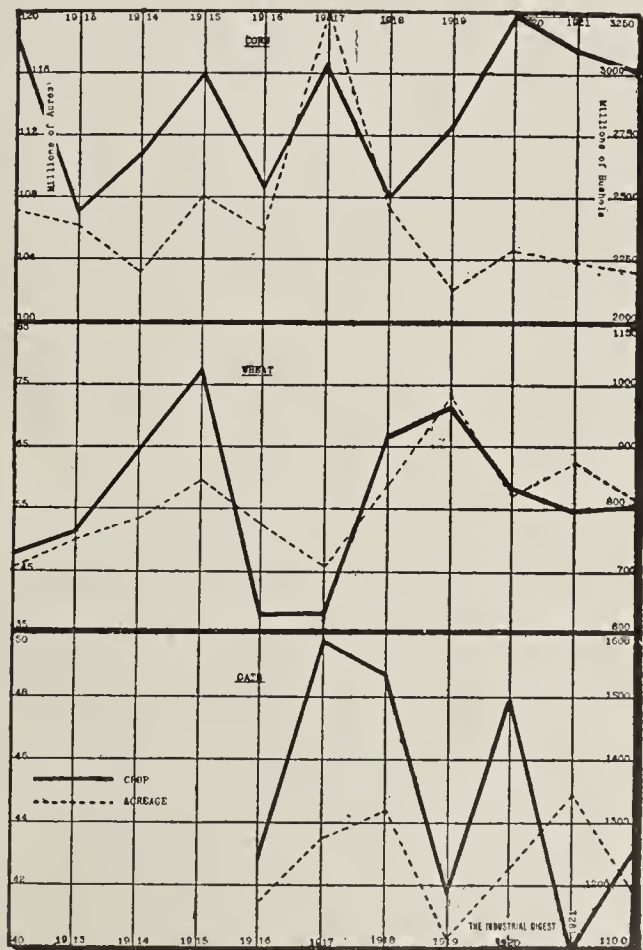
Results of the exhaustive investigations of the two-shift and three-shift day problem in numerous industries will be presented at a meeting of the Executive Board of the American Engineering Council of the Federated American Engineering Societies to be held in Boston, September 8 and 9. Horace B. Drury has prepared a report on the extent of two-shift operation in the continuous industries, and the procedure followed in changing to three-shift day. Among the industries investigated are the metals, glass and cement, lime, brick and pottery, chemicals, sugar, salt, petroleum, cottonseed and other vegetable oils, paper, flour, rubber, miscellaneous manufactures and mines, electricity, gas, water, ice, transportation, communication, care-taking and personal service. Bradley Stoughton will present the report of an investigation on the procedure followed in changing the operations of a steel plant from two-shift to three-shift methods. It is expected that the Board

LONG-TIME TREND OF WAGES UNITED STATES - 1840-1921

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NATIONAL INDUSTRIAL CONFERENCE BOARD
NEW YORK CITY



SOURCES: UNITED STATES BUREAU OF LABOR STATISTICS - SOLID LINE
NATIONAL INDUSTRIAL CONFERENCE BOARD - DOTTED LINE



The Curves at the Top Show the Fluctuation in the Size and Acreage of Different Crops. Chart 1 Refers to Corn, Chart 2 to Wheat, Chart 3 to Oats. These Figures from the Industrial Digest Are Based on U. S. Government Reports.

The Curves at the Left Are Based on Available Wage Data. The Large Chart Shows a Steady Upward Trend in Wages Except in the Two Post-War Periods. The Insert Chart Compares the Rise in Wages During the Civil and World Wars.

will take some definite action following the presentation of this data.

Other matters to be considered at the Boston meeting are international affiliations with engineering societies, the question of Government reorganization, involving a proposal to establish a national Department of Public Works, reforestation problems, flood control and water supply, and plans for the countrywide expansion of the Federated American Engineering Societies. Mortimer E. Cooley, president of the federation, will preside at the meeting.



URGE TRADE ASSOCIATIONS TO COOPERATE

Wider collection and use of essential business statistics is urged by the Chamber of Commerce of the United States. The Chamber announced recently that it was preparing to set up a service for chambers of commerce and trade associations for the purpose of informing them as to how statistical bureaus may be established and operated.

"During our last period of inflation the lack of accurate figures on production, consumption and stocks on hand was the primary cause of the runaway markets at that time," the Chamber comments in a bulletin which it has prepared. "The hue and cry of shortage in many lines was not founded on facts but the lack of facts. Later, the release of large quantities of goods brought demoralization and loss.

"As long as there is a dearth of essential data in commerce, just so long will speculation and profiteering be possible. Secretary of Commerce Hoover persistently has urged trade associations to equip themselves to furnish him figures concerning matters vital to their industries, which would enable him to render the services so vital to their own interest, but comparatively few are doing it today.

"The primary cause of this failure is the hesitancy and disinclination of the average business man to furnish his quota of data, fearing that in some way he does not know just how—he will be affording competitors an opportunity to take advantage of him. By this very act he deprives himself of information of value in the intelligent control of his business.

"We have come to know that business travels in cycles and that there is an ebb and flow of sufficient regularity to make it possible for management to pursue a course which will avoid much of the loss occurring during depressions. Management must provide itself with facts, as to the past

and present, and the trends as to the future to back its judgment. We have been too prone to disregard danger, relying upon our initiative to get us out of trouble when it comes upon us. We have been fairly successful thus far, but generally at a tremendous and unnecessary cost.

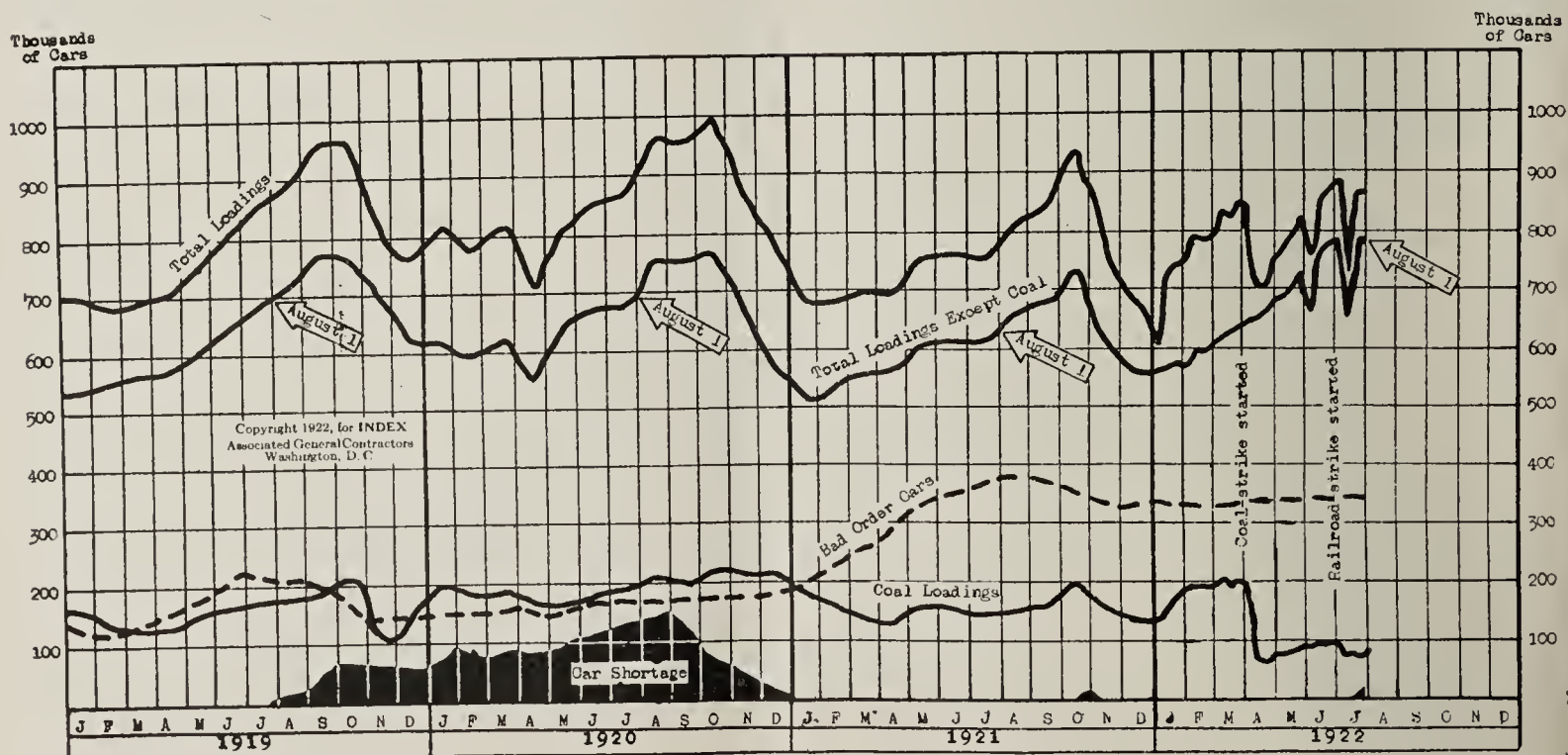
"In undertaking to bring home to business and industry, especially to the manufacturer, jobber, wholesaler and retailer, the desirability of releasing and furnishing to competent agencies statistical data concerning business operations, we do so believing that we can no longer proceed by guess or estimate. We believe the equipping of trade associations to receive, digest and present essential facts concerning an industry is an important justification for their existence, if at all times the interest of both their members and the public is held in equal regard.

"A recent inquiry sent to trade associations brought the following returns as to their activities in serving their members along statistical lines, the number prefixed to each classification indicating the number of associations rendering such service:

16 Production	10 Sales
26 Shipments	2 Production consumption
17 Orders—new	5 Raw material consumption
10 Orders—canceled	2 Raw material stock
20 Orders—unfilled	9 Credit information
4 Plant capacity	3 Advertising
4 Plant operation	2 Purchases
12 Operating costs	2 Markets
8 Wages	1 Terms
5 Numbers of employes	3 Imports
13 Stocks on hand	

"It is the purpose of the Fabricated Production Department of the Chamber of Commerce of the United States to give special consideration to promoting interest in business statistics and their development and use in commerce.

"We shall not set up and operate a statistical bureau in the Department, but will encourage such bureaus being made a part of the service equipment of trade associations and chambers of commerce. We shall undertake also to gather and hold available for the calls of our organization members, information as to how such bureaus may be set up and operated. We are assured of the interest of both governmental and general agencies, who know the great value of dependable data, but our success will depend largely upon the cooperation of those who can furnish the figures."



Variation in Car Loading Figures for Four Years. Despite the Coal Strike Loading of Other Commodities Has Increased.



The Above Miniature Houses Were Attractively Constructed and Arranged on a Platform in Center of Booth of the Chicago Brick Exchange Common Brick Exhibit at the Pageant of Progress Held at the Municipal Pier During August 5-20. One View of General Exhibit is Pictured on Right.



OPEN SHOP CLAIMS IMPROVEMENTS

The Open Shop Department of the National Association of Manufacturers, reports an analysis of the methods by which closed shop industrial policies increase costs to the consumers. It says that comparisons between cities where building is on an open shop basis and on a closed shop basis reveal 56 per cent. more building, 34 per cent. higher money wages and 18 per cent. greater average savings deposits in the open shop towns as compared with 126 per cent. more unemployment and rent increases 30 times as great in the closed shop cities.



RAILROADS BUSIER THAN IN 1921

A report bearing out the contention of the railroads that they have been successfully handling business in spite of the shopmen's strike was seen in the figures of the American Railroad Association for the second quarter. This showed that during the seventeen weeks' period, extending from April 2 to July 29, the railroads of the country carried nearly 7 per cent. more freight traffic than they did during the same period in 1921, but that owing to the coal strike a reduction of 45.82 per cent. was reported in the number of cars loaded with coal as contrasted with a year ago.



LARGE INDUSTRIAL FOUNDATION FUND

Just at the present time everyone in Indianapolis is becoming very much interested in the proposed formation of what will be known as the Indianapolis Industrial

Foundation, with a capitalization of more than \$1,000,000. This fund will be used to provide financial and advisory service to both old and new industries in the city. Some of the most prominent men in the trade are backing the movement, which promises to be of vast assistance to the industrial growth of the city. While not so important to the retail end of the trade, the fact remains that in order to further the cause, the retailers are coming forward almost in a body with their moral and financial support toward the formation of the organization. The Foundation will be sponsored by the Indianapolis Chamber of Commerce and will function thru the Bureau of Industries of that body. It is the intention of those behind the movement to create such a large reserve fund in the capital stock issue that industries may be aided financially at a nominal rate of interest, when an investigation of the organization, its product and its market area show that by the aid of capital and some good sound advice, the industry can keep its head above water. In this way the old industries of the city will be benefited as well as the new. One prominent man said when talking of the wholehearted support that was being given the movement, that it was the intention to keep failures in Indianapolis down to a minimum. He said many failures were due to lack of financial assistance at the right time and also lack of proper cooperation on the part of other executives who might assist in solving that particular problem if they were apprised of the situation. It is planned to make the foundation self-sustaining thru the rate of interest charged.



The Building Situation

THE HOME BUILDING boom continues to be the feature of New England construction activities, and with no abatement now, at the peak of the summer season, it is a safe supposition that even greater volume of work will prevail thruout the fall. Weekly contracts in this section are holding to the \$8,000,000 mark, as compared with \$5,000,000 at this time a year ago, and slightly over \$6,000,000 in 1920. The metropolitan Boston district is showing advancement along industrial building lines, particularly in the direction of brick textile mills, and the past fortnight has produced a number of important operations of this character.

There is a growing scarcity of common labor in the New England territory, particularly in parts of Connecticut. Just as brick producers in the outlying districts are having their troubles as regards the supply of first class labor, so are the

larger cities experiencing the same difficulty. In the different centers, the wage scale has been advanced from 30 to 40 cents an hour, without any appreciable effect.

Activity in New York

Residential construction still occupies the center of attention at Greater New York, easily evidenced by the July figures, now available, showing an amount of \$20,662,300 devoted to this branch of building during the month, representing 56 per cent. of the month's total. Business structures aggregated 19 per cent., or \$7,114,500, and educational building, \$4,150,500, or 11 per cent. of the gross. The month's work, altho a slight recession as compared with the June figures, showed an advance of 59 per cent. over the totals for July, 1921.

New York builders are about to go "shopping" for materials.

(Continued on Page 272)

Eleven Years Oil Burning Experience

How an Iowa Company Uses Fuel Oil for Burning Its Ware
— Advice on Things to Watch in Changing from Coal to Oil

Mark A. Taylor, Cer. E.

Vincent Clay Products Co., Ft. Dodge, Ia.

THE NATION WIDE coal strike has, without doubt, been viewed with serious concern by all clay workers who use coal as fuel. Their only recourse in the event of prolonged trouble of this nature is to shut down, or to hunt a new source of fuel supply. Fuel oil is the only acceptable substitute now in use, and a brief summary covering eleven years of successful operation with oil as kiln fuel should prove interesting, instructive and profitable.

The Vincent Clay Products Co., drain tile manufacturer of Fort Dodge, Iowa, operates an eighteen chamber Goldner patent kiln of the Youngren type that has been in practically constant use since 1911. The kiln has been modified to fit local conditions, but the burning procedure is basically the same as is employed on all kilns of this type.

Each chamber is fired from the top thru a series of eleven fire holes. These fire holes are spaced some $3\frac{1}{2}$ feet apart along the side of the chamber, and the flame impinges on brick fire boxes which are built into the flash wall just below the spring of the crown.

Oil Fed Thru Headers

The main oil and high pressure air lines are piped clear around the kiln, and pass over the center of each chamber. These mains are buried about six inches in the kiln insulation, and risers are provided for each chamber. Three sets of headers are used in burning, one chamber being on full fire, the one ahead in the oxidizing stage, and the second chamber ahead ready to light when the chamber on full fire is taken off. The headers are simple affairs, and consist merely of two pipes, as long as the chamber, and of diameters corresponding to the mains. Each header is fitted with burner valves and connections opposite each fire hole, and the oil header line is also fitted with a screen and meter. The burners are a revelation in simplicity, for each one consists merely of a length of $\frac{3}{8}$ -inch pipe which passes down thru the fire hole and extends just thru the crown arch. Practically perfect combustion results from this arrangement. The reason for success in such a crude burner is that the secondary air is drawn by the draft fan from the cooling chambers behind, and is thus heated to temperatures ranging from 1,200 to 1,800 deg. F. With such intense heat the oil burns readily without necessitating a perfect mixture of oil vapor at the burner mouth. Without doubt, a more efficient burner would be necessary on a periodic kiln. The high pressure air is delivered to the kiln at 30 lbs. per sq. in. and the oil pressure is maintained at 45 lbs.

The Burning Operation

The preheat stage of the burn (which corresponds to the water-smoking period in periodic kilns) covers about 60 hours and the temperature rise is from atmospheric to 750 deg. F. The heat for this stage is furnished by the

fuel gases, which are drawn from the burning chambers thru three chambers ahead before they pass into the main draft flue. The chamber is lit at 750 deg. F., and burners added by stages thru the oxidizing period until at 1,450 deg. F. we have seven burners on fire. When oxidation is complete, (usually covering a period of 17 hours) the full fire stage begins. The remaining four burners are added, and the kiln is finished at approximately 2,000 deg. F. in an additional 20 hours. Thus the actual firing period covers only 37 hours. When a burn is completed the header is drained of oil, disconnected, and moved by means of a chain block and overhead trolley to the third chamber ahead, where it is connected and made ready for another burn.

Advantages of Oil

The natural advantages of oil firing are much in evidence at this plant. Only two firemen are carried on the pay roll, and they are largely employed as burners should be—in using their heads instead of their hands. There are no unsightly piles of coal or ashes, and no soot, smoke, or dirt. The only cost in handling the fuel is the power consumed by the one H. P. motor which drives the oil pump.

At present, the clay used contains considerable sulphur and carbon—but the ware burns clean and with no unsightly scum. The writer is sure that if coal were used, the quality of ware would decrease materially, and the percentage of number one ware would be much lower. The kiln temperature is under positive control, and the pyrometer record charts present an unwavering line instead of the “hills” and “valleys” found where firing is intermittent. The ware is not protected from the flame, and is set within $2\frac{1}{2}$ feet of the fire, but there is very little over-burned ware around the flash wall. This is due to the fact that a very short flame is used (a ball of fire not over 8 inches in diameter at the mouth of the burner).

A summary of burning costs from any particular installation would do more to mislead than to assist, for conditions at every separate plant differ widely. Then, too, freight rates, which at present play an important part in fuel costs, will naturally vary widely in different localities. The fact stands, however, that the Vincent plant has been operating for many years, and successfully meeting live competition from a number of coal fired yards in the same district.

Points to Consider

Finally, before making a change from coal to oil, it would be well to consider the following items. First—A careful comparison of actual operating costs of fuel oil versus coal, as estimated for the particular locality in question, should be made. Second—The advantages in favor of oil that cannot be estimated in dollars and cents, such as, clean yards, no coal or ashes to handle, increased quality of ware, and better satisfied and more efficient

Editor's Note—One plant reports a consumption of 12 to 14 gallons of oil, another 14 gallons and a third 28 gallons for burning one thousand brick. A fourth plant uses 40 gallons per ton of drain tile.

burners should be carefully considered. Third—A decision should be made as to whether the high pressure or the low pressure air system would give the best ultimate results at the plant in question. Fourth—The cost of installing the system should be figured very closely.

After a complete analysis of these points, each manu-

If your coal, oil or gas has a different value, the corresponding amount from the table can be figured by a simple proportion.

Figured on a basis of—

Coal, 12,000 B.t.u. per pound.
Oil, 14,400 B.t.u. per gallon.
Natural Gas, 1,000 B.t.u. per cu. ft.
Coal Gas, 625 B.t.u. per cu. ft.
Bit. Producer Gas, 146 B.t.u. per cu. ft.
Anthra. Prod. Gas, 139 B.t.u. per cu. ft.

Oil Gallon	Coal Pounds	Natural Gas Cubic Feet	Coal Gas Cubic Feet	Bituminous Producer Gas-Cubic Feet	Anthracite Producer Gas-Cubic Feet	Total B.T.U
1	12	144	230	986	1035	144000
167	2000	24000	38400	164000	173000	24000000
6 95	83 5	1000	1600	6850	7180	1000000
4 34	52 1	625	1000	4280	4500	625000
1 02	12 2	146	235	1000	1055	146000
97	11.6	139	222	953	1000	139000

facturer should be able to arrive at a fairly accurate decision in regard to the best source of his fuel supply.

Formulas for Fuel Comparison

Aside from any difference in the labor used, in the turn-

over of equipment or in the investment—taking into account only the heat values of two fuels the following formulas are very serviceable for comparison:

$$\text{For coal } \frac{A}{2,000 B} = C$$

$$\text{For fuel oil } \frac{D}{E F G} = H$$

in which

A=Cost of a ton of coal delivered at the point of use.
B=B.t.u. per pound for the coal under consideration.
C=Average cost of each B.t.u. in the coal.
D=cost of a barrel of fuel oil delivered at the point of use.
E=B.t.u. per pound of oil.
F=Number of pounds of oil to the gallon.
G=Number of gallons to a barrel.
H=Average cost of each B.t.u. in the oil.

Take a coal costing \$4.50 per ton with 12,500 B.t.u. per pound, and compare with oil costing \$1.10 per barrel of 42 gallons having a heat value of 21,000 B.t.u. per pound and weighing 7.7 pounds per gallon. The formulas become

$$\frac{\$4.50}{2,000 \times 12,500 = 25,000,000} = 0.000,000,18$$

$$\text{Cost of one B.t.u. from coal.}$$

$$\frac{\$1.10}{21,000 \times 7.7 \times 42 = 6,791,400} = 0.000,000,162$$

$$\text{Cost of one B.t.u. from oil.}$$

In comparing the costs for any two fuels the costs of operation and the investment must be taken into account, in addition to the difference in fuel value as shown above.

Fuel engineers state that the average efficiency of coal is sixty per cent. and of fuel oil seventy per cent. This must be taken into consideration when comparing two fuels.



Brick Selling at \$1.68 to \$2.80 Per M

By Special Foreign Correspondent

BOTH because it is of general interest, and because there is a possibility of European brick being brought into this country as threatened by Untermeyer, the situation of the brick and tile industry in Denmark and Germany, as set forth in this article, will be of especial interest at this time.

In Germany during the war very few tenement houses were constructed. A large part of the brick and tile industry was shut down. Only in the vicinity of industrial establishments turning out war work were houses erected for workers and officials.

The war and its aftermath brought a large number of people into towns and industrial centers, and the need for dwellings grew to such an extent that the Government was compelled to establish control of flats and rooms, and fix rents. There are now district offices all over the country, the special duty of which is to provide habitations for German citizens. In conjunction with these offices, there is maintained a department for the settlement of differences between tenants and landlords.

At the present time the rent in Berlin is 120 per cent. above the pre-war rate. Considering that wages have gone up about 4,500 per cent.; railroad fare, 4,000 per cent.; coal and iron, 10,000 per cent., compared with 1913 and 1914, and the whole-

sale index number given by the statistical offices stands at about 7,000 as against 100 in 1913, it is evident that the return in rent is wholly inadequate to pay an interest which will induce people to invest in houses.

Building Activities Have Increased

On the average, the rent in 1913 amounted roughly to about ten per cent. of wages. It is now only about one-half of one per cent. This, of course, has a considerable influence on wages in general, and on the competitive position of Germany in the world markets.

Since 1920 building activities have increased considerably, and the brick and tile industry is having a regular boom. More capital is now being invested in building dwelling houses, since the rooms and apartments in them can be let to anybody at most any price. Industrial buildings, the erection of which had been neglected since the beginning of the war, are now also being constructed to a considerable extent.

The majority of houses built in pre-war days consisted of four stories with two flats on each floor, but the houses being built now are mostly of the small country house type for one or two families. The banks are erecting large extensions and

two high office buildings along the lines of American skyscrapers will soon be started in Berlin. 8,346 dwelling houses and 516 factories and other buildings were erected during May, 1922, against 3,160 new buildings in May, 1921, and 7,486 dwelling houses and 437 factory buildings in April, 1922.

Demand Greater Than Supply

The brick and tile industry is at the present time unable to meet the demand, and works are asking from eight to ten months for delivery. Scarcity of coal is retarding production, and inferior fuel, such as peat, which is being quoted at 55 to 65 per cent. of coal prices, is being used. There are no stocks available, and shipment is being made immediately upon completion of manufacture.

Brick prices at the present time are 1,200 to 2,000 marks per thousand. This is equivalent to \$1.68 to \$2.80 per thousand with the mark at its present quotation of .14 cents.

Several brick plants are erecting dryers in order to be able to work thruout the entire year. The number of tile plants

in 1919, and the tiles 11.1 million, 15.3 million and 16.7 million respectively. The value of the whole production of the country was 19 million kr. in 1921, 27.8 million kr. in 1920, and 31 million kr. in 1919. The diminished home demand has not reduced the import, which is, however, only 5 per cent. of the home production. The sales of brick exceeded production by nine million during 1921, and the available stock has been reduced therefore to 115 million.



CONCRETE TILE FAILS IN ALKALINE SOIL

Concrete tile, as commonly manufactured in the past, cannot be relied on to withstand soil conditions prevailing in the southwestern portion of the state, it was disclosed following an investigation made in Minnesota by E. V. Willard, state commissioner of drainage of waters and the United States Department of Agriculture.

The investigation showed that the alkaline condition of soil in portions of the 14 counties in the 22 southwestern counties of the state was of such nature as to destroy concrete tile. The area in which these conditions are found, is described as being on a south-easterly line from Madison to Walnut Grove and southerly from Walnut Grove to Miloma.

The report of the engineers, however, states that concrete tiling in communities other than those in which the percentage of alkali is too great, is "standing up" and is meeting with entire satisfaction.

The investigation which was ordered by the legislature has covered a period of about three years and shows conclusively, Mr. Willard said, that where the total salt content of the drainwater is found in quantity, the concrete tile will not stand up.

Twenty distinct tile failures were examined in 17 different drainage systems in southwestern Minnesota and in all but three cases the total salt content of the drainwater exceeded one-hundredths of one per cent., the report reads.



BUYERS' WEEK IN INDIANAPOLIS

Probably the most pretentious performance ever put on by the wholesale division of the trade in Indianapolis will be staged the week beginning August 28, when the retailers in and surrounding Indianapolis will be entertained in what is to be known as "Buyers' Week." Jobbers now are getting out invitations to their customers and those they want as customers and it is expected that hundreds of retailers will take advantage of the week. A special program of business and pleasure is being mapped out. Many inducements will be offered for purchasing at that time, including a return of round trip fare for purchases amounting to a fixed sum. One evening of the week will be devoted to a big meeting to be addressed by a speaker of national prominence. Those behind the movement say the speaker has been invited, but his name will not be divulged until a positive acceptance has been assured. The jobbers have not only issued written invitations, but the men on the road are busy finding every retailer in every town they visit and extending personal invitations on behalf of the management of his particular concern. The state has been posted with flaring outdoor displays telling of the advantages of Indianapolis as a jobbing center for the state and surrounding points. It is announced that special vaudeville stunts are being arranged on various nights for the entertainment of the visitors. Leading jobbers in the trade say merchandise worth several millions of dollars will be on display.

UNTERMAYER SHIPS GERMAN BRICK

It is reported that two shiploads of brick, manufactured in Germany, are on their way to the New York market. The consignment, it is stated, was made in and around the city of Danzig, and started on Thursday, July 27, according to a message received by Z. Balton, secretary of the Associated Builders of Kings County, from the secretary of Samuel Untermeyer, who is now in Europe, and who conducted the negotiations for the two big orders. The imported brick will be sold to builders in the association for \$10.50 a thousand, it is said.

in Germany is about 700. The production amounted to 700,000,000 tile in 1920, and is estimated to be about 835,000,000 in 1921. Only a small part of this production is exported. It is expected that this year's business will be even less, since Holland, Belgium and French establishments are enlarging their plants and increasing their output.

Denmark Less Prosperous

The situation in Denmark is quite different. Quite a number of establishments are lying idle on account of the diminished demand, and because of the German competition, which is especially strong in Jutland. In 1921, 219 firms were working right thru the year, while 30 were not producing. Some of the latter were, however, selling from stock. The 219 firms employed about 4,200 men in 1921, against 5,200 in 1920. Production in 1921 decreased to about 75 per cent. of the 1920 figure, and amounted to about 50 per cent. of the output of 1919. The following table gives the production in 1919, 1920 and 1921 in numbers:

	1921	1920	1919
1. Hand-formed brick	19,518	27,779	33,043
2. Machine made facing brick.....	32,757	45,872	65,288
3. Machine made ordinary brick.....	159,612	201,713	297,979
4. Ordinary tiles	5,769	8,472	8,311
5. Gutter tiles	5,380	6,889	8,427
6. Drainpipes	26,659	23,850	25,479
7. Partition wall brick.....	3,641	4,931	5,343
8. Radial brick	2,092	1,615	1,777
9. Slabs and clinkers, etc.....	3,313	3,151	5,277

It will be noticed that the production in the principal lines has gone back considerably. The quantity of brick produced numbered 212 million in 1921, 275 million in 1920, and 396 mil-

Soluble Salts in Clay Wares

Discussion of Standard Terms on the Deposits Formed on the Surface of Burned Clay — Suggestions for Overcoming This Defect and Explanation of Why Barium Compounds Are Used—Many Authorities Quoted

C. W. Parmelee

Acting Director, Department of Ceramics, University of Illinois

A résumé of the present knowledge of the causes and the prevention of "Scum" and "Efflorescence." It is proposed that the term "Efflorescence" be restricted to designate the surface deposits appearing because of the presence of soluble salts in the clays or burned wares and that the term "Scum" be used to describe the salts formed by the action of gases upon the wares during the drying or burning operations.

Mention is made of the formation of a surface coating upon the ware soon after the kiln is opened, sometimes not appearing until some days after the ware is removed from the kiln. This scum is readily and permanently removed by the application of water.

Such a residue was found to consist of sodium sulfate and sodium chloride. It is suggested that its formation was due to the presence of sodium chloride in the fuel and its subsequent deposition on the burned ware where it was changed in part to the sulfate by the action of the oxides of sulfur evolved from the fuel.

THE CAUSES and the cures for the various manifestations of soluble salts have been topics of lively interest among manufacturers, architects and builders for many years. A very considerable amount of literature has been accumulated which has furnished a valuable source of information. In fact, the writer feels some hesitancy in presenting this paper because he recognizes the fact that most phases of the subject have been so ably discussed by others that this cannot be considered an original contribution, but a compilation of various opinions. However, I have been surprised to find that one phase of the subject which is of considerable importance has scarcely been noticed by writers; namely, the type of kiln scum which is of temporary character as contrasted with that which appears to be permanently burned into the ware.

Definitions

In order to clear our way of misunderstandings due to a confusion in the use of terms, I will define those which I am about to discuss. They are: *Efflorescence*: The accumulation of salts upon the surface where they have been brought in solution and deposited upon the evaporation of the water. *Scum*: A term which is used interchangeably with efflorescence.

There does not appear to be any general agreement as to a distinction in the usages of these terms. Searle, an English writer, author of several books on ceramic topics, says that "efflorescence" is due to the formation of this deposit during drying and that "scum" is formed during the burning. In

answer to an inquiry made by letter, one of your members has kindly written to me that in his study of the matter he has found the term efflorescence applied to the discoloration which appears on the brick in the wall, or brick in stock piles after they have been wetted. "Scum," he says, is commonly understood by himself and his associates to be the surface deposit which is formed during the drying process.

Dr. H. Ries, in his book "Building Stones and Clay Products,"¹ uses both terms without differentiating between them. Lovejoy,² in an article entitled "The Use of Barium Compounds in Preventing Scum," says that there are "three distinct lines of efflorescence," one of which is "dry-house white, the common scum." In other words his practice conforms to that mentioned by one of your members. A diligent search of literature has failed thus far to find any general agreement regarding the use of the terms.

Terms Should Be Standardized

It is well for us to arrive at some agreement regarding the use of these terms since it is obvious that we cannot hope to make much progress in a discussion, if each party is using a different language.

My own feeling in the matter is that we can use the word "efflorescence" as defined in the dictionary to include all surface deposits of salts which have accumulated there thru the agency of water which has brought them to the surface in solution. This term will then include those surface deposits of salts that accumulate upon raw clays in their original beds, or in stock piles and bins, all surface deposits which occur in the drying of the ware *excepting* certain examples dried with the waste heat of burning kilns, all coatings of soluble salts on masonry work in walls, piers, etc., which have originated thru the solvent action of water upon materials in the clay wares or have been contributed by the mortar used, also coatings of soluble salts brought to the surface during the early stage (the water-smoking) of the burning process.

The use of the word "scum" I would limit to designate all surface coatings of soluble salts which have originated thru the agency of gases in the atmosphere of the dryer or kiln; also thru deposits upon the surface of volatile substances. Our classification will then include:

Efflorescence	{	Soluble salts upon clays
		Dryer or dry-house white
		Kiln white—certain forms
		Wall white
Scum	{	Dryer white due to the action of waste gases
		Kiln white with exception noted above
		Certain forms of wall white

We will now take up these items in detail discussing the causes, occurrence and proposed remedies.

Efflorescence of Raw Clay

All clays contain soluble salts. That is to be expected since all clays have been formed thru processes of decomposition and

*Address before the Indiana-Illinois Division of The American Face Brick Association, at a meeting in Chicago.

†Distributed by the Secretarial Department, The American Face Brick Association, 130 North Wells Street, Chicago.

¹Ries, Building Stones and Clay Products, p. 312.

²Lovejoy, Trans. Amer. Ceram. Soc., 8, 255 (1906).

solution of various rocks, many of which are of types very resistant to chemical attack. English china clays which have been formed from rocks of a granitic type and are typical of the purest kind contain, according to Dr. Mellor,³ about 0.015 per cent. soluble salts. The same authority says that ball clays contain normally 0.4 per cent. soluble salts which are chiefly soluble silicic acid (15 to 20 per cent.) and soluble silicates of alkalis and alkaline earths with about 1 to 2 per cent. of alkaline chlorides and about 20 per cent. of sulfates. Ries, in his report upon the clays of New Jersey, found in testing a large number of samples which varied widely in character that the soluble salts ranged from 1.49 per cent. to nothing. The report on the clays of West Virginia by Grout states that the amount of soluble salts present varied from a trace to 1.2 per cent. In a report on the clays of Texas,⁴ Dr. Ries states that the amount of soluble salts ranged from 0.05 to 1.21 per cent.

Fortunately, the soluble salts are not all objectionable and also certain conditions interfere to prevent the objectionable ones from always exerting the maximum harmful influence.

Character and Formation

The soluble salts present in clays are of many sorts. They include hydrated silicic acid, aluminum salts, probably most commonly the sulfate, the sulfate of iron (the writer has seen crystals of both the sulfates of iron and alumina upon the face of clay as it lay in the bank), the sulfates of lime, magnesium, and the alkalis, sodium and potassium, also the chloride of sodium is not infrequently found and it is altogether probable that this list may be very considerably extended. Of these salts, the most frequently found and the most troublesome are the sulfates of lime and magnesia.

In studying clays, we are dealing with materials which contain particles of varying sizes, some of which are so small that they cannot be seen except with a microscope especially designed for the purpose. When matter is reduced to such infinitesimally small fractions and subjected to prolonged contact with water, it is taken into solution, more or less. This process is repeatedly occurring in our laboratory work. When we grind material for a long period in contact with water, we find that there is unmistakable evidence of a gradual solution of a small portion of the batch. Therefore, we expect to find soluble salts in all clays, varying in amount and character of course, but there, nevertheless, because of the continued solution of the finest portions upon long contact with water. This is the explanation for the observation of Grimsley and Grout⁵ that the soluble salts found in West Virginia clays were unexpectedly high in alumina and silica and in some cases no sulfates could be found.

In fact, the determination of the amount of soluble salts in clays is seriously complicated by the progressive solubility of clay in contact with water, so that the duration of the contact and the temperature are extremely important factors in such an investigation.⁶

Formation of Sulfates

Iron pyrites (ferric sulfide) is a common mineral in almost all kinds of clays, occurring in large lumps and also in finely divided particles. It is quite insoluble. If this mineral, especially the form known as marcasite, is exposed to free contact with air and moisture, it will oxidize to form the sulfate of iron which dissolves freely in water and is frequently found as a yellow or brownish yellow efflorescence on raw clay which has a sweetish astringent taste, reminding one of ink. This efflorescence sometimes occurs on ware coming from the dryer and is known as "brown scum." On the burned ware, *i. e.*, of red or brown color, it cannot be readily distinguished, because

it is decomposed during the burning and the iron oxide remaining will be red or brown.

The sulfate of iron formed from the pyrites in the clay will decompose quite readily and set free sulfuric acid which in turn will speedily attack the carbonates of lime, magnesia or iron which may be present and form the sulfates of these bases. This is a very ordinary method of the formation of the sulfates of lime and magnesia.

For this reason, the weathering of clays containing pyrites or marcasite, the sulfides of iron, has been a frequent cause of serious efflorescence. The remedies are either, use the clay as promptly as possible after mining, or on the other hand weather the clay for a sufficient length of time to permit the complete change and removal of the sulfides. However, this will not avail if the clay contains the carbonates of lime, magnesia or iron, since the sulfuric acid formed will attack and form the very troublesome sulfates of these bases.

Weathering Removes Soluble Salts

Ries⁷ cites the analysis of a clay freshly mined containing pyrites which showed a soluble salt content of 0.2 per cent. The same clay which had weathered showed 0.87 per cent. soluble salts.

If weathering is resorted to, the clay should be spread out in a layer not over two feet thick on a hard, slightly inclined floor. This will permit the removal by natural drainage of the soluble iron salts formed. Of course, the weathering process may be hastened by spreading the clay in thinner layers and by wetting the mass thoroly from time to time.

In this process, the soluble salts formed are brought to the surface during drying and then removed by the water which falls upon the surface, either as rain or from a hose. Analyses which I have before me showing the change in a clay by weathering give the following figures:

	Before weathering	After weathering
Lime (CaO)	1.98%	1.01%
Alkalies (Na ₂ O, K ₂ O)	1.62%	0.75%

This illustrates how the change proceeds in that particular case.

Mellor⁸ suggests that soluble salts in a clay may be due to the action of humic acid upon calcium carbonate which is present. Humic acid is one of the products formed by the decomposition of organic matter and, undoubtedly, it is a common constituent of many clays.

Amount of Soluble Salts

The amount of soluble salts which may be permissible in a raw clay or shale without danger of efflorescence is not known. According to Ries⁹ less than 0.1 per cent. is often sufficient to produce a white incrustation. Searle¹⁰ says that as little as 0.01 per cent. of the sulfates of lime, magnesia, alkalis, ferrous iron and aluminum has been known to spoil face brick. Dr. Mackler¹¹ is quoted as saying that "the amount of scum formed on finished goods bears no definite relation to the proportion of soluble salts contained; but there is quite a definite relation between the amount of the magnesium and sodium sulfates and that of scum." There are other factors involved concerning which we will speak further on.

Staley¹² has made an exceedingly interesting observation. He added calcium sulfate to a fine grained red burning shale in amounts increasing to 3 per cent. of the dry clay and was unable to produce efflorescence even with slow drying. When he added 1 per cent. of magnesium sulfate it appeared in large quantities and a 1 per cent. mixture of equal parts of the sulfate

³Mellor, *Clay and Pottery Industries*, p. 56.

⁴Ries, *Bull. Univ. Texas*, No. 102, p. 45.

⁵Grimsley and Grout, *West Virginia Geol. Surv.*, Vol. III, p. 26.

⁶Trans. Amer. Ceram. Soc., 11, 467 (1909).

⁷Ries, "The Clays of Texas," *Bull. Univ. Texas*, p. 45.

⁸Mellor, *Clay and Pottery Industries*, p. 56.

⁹Ries, *Clays, Their Occurrence, Properties and Uses*, p. 116.

¹⁰Searle, *Clayworkers' Handbook*, p. 335.

¹¹Mackler, *Ibid.*, p. 243.

¹²Staley, *Trans. Amer. Ceram. Soc.*, 17, 200 (1915).

¹³Barringer, *Trans. Amer. Ceram. Soc.*, 4, 224 (1902).

of calcium and magnesium gave an even greater amount of efflorescence. He explains this by pointing out that magnesium sulfate is very soluble in water while calcium sulfate has only a slight solubility. He also states that small amounts of calcium sulfate hastened the rate of drying which would act towards a decrease in efflorescence.

Determination of Soluble Salts

Barringer¹³ experimented with a fire clay by adding increasing amounts of calcium sulfate and magnesium sulfate in the ratio of three to one. Additions of these salts up to three per cent. did not show a corresponding increase in efflorescence.

Those interested in the procedure used in the determination of soluble salts are referred to the following literature:

- Mellor, Quantitative Inorganic Analysis, p. 630.
 Mellor, Clay and Pottery Industries, p. 53.
 Grout, West Va., Geol. Sur. III (1905), p. 26.
 Ries, New Jersey Geol. Sur. VI (1905), p. 76.
 Ashley, Bur. of Standards Tech. Paper 23, p. 96.
 Bleininger, "Electrical Conductivity of Clays." Trans. Amer. Ceram. Soc., 15, p. 523.

Determination of Soluble Sulfates (Factory Method)

A factory method for the determination of the soluble sulfates which is simple in operation and requires very little apparatus is as follows:

Into each of several glass jars, the pint size fruit jar or a jelly tumbler will do, there are weighed equal quantities of the clay which have been dried previously at the temperature of boiling water. To these various jars equal quantities of distilled water are added and the samples are well stirred or agitated. If distilled water cannot be obtained, the water from condensed steam may be used or even rain water which has been gathered in clean receptacles after the first downfall has washed the air free from acid gases. In the vicinity of large towns or manufacturing plants, it is inadvisable to collect rain water for such a purpose. A dilute solution of a known strength of barium chloride is carefully prepared with distilled water. Into one of these several samples of clay is introduced a measured quantity of the barium chloride solution. To another sample is added a slightly larger quantity and so on, gradually increasing the amounts of the barium chloride used. After stirring or agitating each sample thoroly, they are allowed to stand for several hours in order that the clay may settle as much as possible. A small portion of the clear or slightly turbid water is carefully poured off from each jar. If turbid, it will be necessary to run these portions thru filter paper and even boil them with the addition of a small amount of hydrochloric acid, or, as has been recommended, a solution of aluminum chloride. After a portion of the fluid has been removed from a sample and clarified, a drop or two of dilute sulfuric acid is added and the appearance of the fluid noted. If a white cloud forms upon the contact of the drop of acid, it is an indication of the presence of an excess of the barium chloride. Since the barium chloride which was added to the various portions has had an opportunity to react with the sulfates and to render them all or most of them, insoluble, depending upon the quantity of the sulfates or sulfuric acid present, the presence of an excess of the barium chloride indicates that more than a sufficient amount of the barium chloride has been added to do the work for which it was intended, namely, to render the sulfuric acid and sulfates insoluble and therefore harmless. We will assume, by the way of an example, that the first five sample jars do not show any appearance of a white cloud or precipitate upon the addition of the drop of dilute sulfuric acid, but that the sixth jar does show this appearance. The sixth jar therefore contains an excess of the barium chloride. Since we know the weight of clay in the jar and the amount of barium chloride added to it, we are in possession of the necessary data for the calculation of the amount of barium chloride or barium carbonate which

is required for addition to any known weight of the dry clay.¹⁴

Water as a Source of Soluble Salts

It not infrequently happens that the water used in the manufacture of wares is the cause of the appearance of efflorescence. It should always be considered in the investigation of the cause. Very frequently information regarding the local supply may be had thru some State Bureau, such as the Water Survey in Illinois.

If the water supply is contaminated by waste from factories, drainage from mines or town sewage, trouble may follow. Unfortunately, definite information regarding the relation between the condition of the water and the appearance of soluble salts is not available.

Prevention

It has been stated that weathering for a limited period may cause or aggravate the trouble while long-continued thorough weathering will prevent the difficulty by dissolving and removing the salts. For a similar reason the elaborate process of washing clay, such as used by potters, affords an excellent means for removing soluble salts. This, however, is too expensive for brickmaking.

The method of prevention most commonly employed is the addition of some compound of barium to the clay. The principle which lies at the basis of this practice, is to convert the sulfates of lime and magnesia into less soluble salts. The relative solubilities¹⁵ are as follows:

One part of	Parts of water
Calcium sulfate	495.0
Magnesium sulfate	3.75
Barium carbonate	45,450.00
Barium sulfate	435,000.00
Calcium carbonate	77,000.00
Magnesium carbonate	9,400.00

If we add barium carbonate to a solution of calcium sulfate we immediately initiate a chemical reaction which gives as final products barium sulfate and calcium carbonate. An inspection of the above table will show that both the calcium carbonate and the barium sulfate are far less soluble than the original salts. The same is true of the magnesium carbonate which will be formed in a like manner. Therefore, this procedure is a sound one in theory as well as in practice.

There are some variations which should be noted. One is the use of barium chloride for part of the barium carbonate. This is a very readily soluble salt which is of advantage since it may be more uniformly and intimately distributed thruout the clay mass whereas the slight solubility of the barium carbonate limits the speed of its action, and longer time is required for it to act effectively.

Care Must Be Used

The very solubility of the barium chloride necessitates caution in its use because an excess over that actually required may be accompanied by the appearance of the barium chloride as an efflorescent salt. The best and usual practice is to add nearly the required amount of barium chloride and enough of the barium carbonate to take care of the last remnant of soluble salts. A reasonable excess of barium carbonate will be unobjectionable.

In recent years, the use of barium fluoride has been proposed as a desirable substitute for the barium carbonate and barium chloride. It is soluble in 614 parts of water and therefore is much more soluble than the carbonate and consequently it is more efficient. It is much less soluble than the chloride. Therefore, an excess will be less dangerous. According to Mr.

¹⁴Detailed information regarding this test has been frequently printed, but will be gladly supplied by the author to any interested party.

¹⁵Staley, Trans. Amer. Ceram. Soc., 17, 201 (1915).

Staley, who recommended it, it has no deleterious effect upon the color of the burned ware and it promotes vitrification.

The most rational and most efficient method is to provide a suitable tank with a stirrer in which the barium salts may be dissolved or suspended in water. Keep this mixture constantly agitated and feed regularly and uniformly into the clay mix.

Amount of Reagent

The amount of barium carbonate to be added is commonly in large excess of the theoretical quantity.¹⁶ In fact, we find instructions in text-books to the effect that the amount should be ten times the calculated theoretical quantity. Undoubtedly an excess is ordinarily needed since the barium carbonate has such a low solubility that it must be generously distributed in the clay batch in order to be reasonably effective within the limited time for action. It is not good practice to use amounts in large excess, however, since thereby the costs are increased and further the color¹⁰ of the brick may be lightened or impaired. One¹⁷ experimenter has noted that in several trials he did not find it necessary to use an excess of the reagents.

Seeger¹⁸ directs that twice the theoretical quantity of barium carbonate be used.

Owing to the low solubility of the barium fluoride, an excess of it is not to be feared and as previously stated it does no harm to the color of the ware.

The use of small amounts of common salt and soda ash (*i. e.*, sodium carbonate) has been proposed and interesting results have been reported.¹⁹ Additions of these chemicals in amounts up to two per cent. increased the amount of the efflorescence in the drying, but there was none on the burned ware. One clay which normally showed a heavy scum when burned, showed progressively decreasing amounts of the scum as the amount of these chemicals was increased. Mr. Staley, who has reported these results, is of the opinion that the heavy deposits of the common salt and the sodium carbonate which came to the surface during the drying served to volatilize or flux the normal scum. He says, further, that the effect of the sodium carbonate slightly darkened the color and the sodium chloride produced a brighter, clearer color. It is desirable that further investigation of the use of the salts and other chemicals should be made on a variety of shales and clays in order that we may know more about the possibilities of what appears to be a very promising procedure.

Dryer White

This is an efflorescence which appears during the drying period. The causes are:

- (1) The use of the gases of burning kilns (scumming).
- (2) The presence of soluble salts in the clay.
- (3) The presence of soluble salts in the water used in the manufacture of the ware.

The harmful effect of the waste gases of burning kilns upon damp ware is so well understood that only a few words should suffice to emphasize the necessity for avoiding the practice. Such waste gases from burning coal, gas or oil will contain more or less of the oxides of sulfur. These gases (sulfur dioxide and sulfur trioxide) will combine with the water present on and in the ware and form strong acids which react very promptly with the carbonates of lime and magnesia and with any alkali salts which are present in a form which is readily attacked. The products of such reactions are the sulfates which form the efflorescence on the unburned ware. Therefore, this method of drying is suited only for wares which are not harmed by the formation of the efflorescence.

The character of the soluble salts which are in clays and in the water which is used has already been discussed. It is the movement of these soluble salts in the clay ware during the drying which is now our concern. The factors which influence the appearance of the efflorescence are:

- (1) The degree of solubility of the compound present.
- (2) The amount and the size of the particle of the soluble salt present.
- (3) Temperature.
- (4) Capillary structure of the piece.
- (5) Rate of drying.
- (6) Amount of water to be removed.

Solubility

The more soluble the compound the more freely it is taken into solution and the greater the amount of efflorescence. Thus the formation of barium sulfate in the ware is not a source of trouble because one part requires approximately 435,000 parts of water to dissolve it. On the other hand, magnesium sulfate is extremely troublesome because one part dissolves in 3.75 parts of water.

Gypsum, *i. e.*, the mineral calcium sulfate, if present, which is a frequent occurrence, will be found in lumps, grains, films and as minute crystals. The carbonate of lime may be present in lumps and grains of widely varying sizes. The carbonate of iron will be found in a great variety of sizes. The sulfates of iron, aluminum and magnesium are present probably as small crystals, films or stains. It is scarcely necessary to state that the size of the particle has a direct bearing upon the rate at which it will go into solution. Choosing a homely example of this, we know that granulated sugar dissolves more rapidly in a cup of tea than a lump of the same.

In general, chemical compounds dissolve more rapidly in hot water than in cold. Therefore as the clay wares are warmed in the course of the drying, a greater amount of the soluble compounds goes into solution.

Capillary Structure of the Ware

All unburned clay wares and much of the burned are permeated with an extensive system of connected pores or tubes of extremely small diameters which we call capillaries. Thru these capillaries the water in the ware makes its way to the surface during the drying process. The movement of the water in the capillaries is greatly retarded by irregularities in the walls and the tortuous path which they follow. Also; the rate of flow in the capillaries diminishes rapidly as the diameters of the capillaries decrease in size. Therefore, we find that the finest grain clays have the most extensive system but the smallest capillaries and accordingly dry the slowest. The slow rate of drying is most favorable for the solution of the salts. In so far as we can open up the structure of the wares, that is, create a system of large capillaries in place of the finer ones, to that extent we hasten the progress of the drying, reduce the time that the water can exert its solvent action and lessen the amount of efflorescence. An excellent example of this phase is the fact that dry press brick do not often show efflorescence. This is due in part to the fact that a minimum amount of water is used in the process of manufacture and also to the more porous structure of the ware during the drying and early stages of the firing.

As previously stated the longer the water in the clay ware stands in contact with the soluble salts, the greater the amount that will go into solution, especially as the temperature increases. It naturally follows that the drying operation should be carried thru as rapidly as is consistent with safety. If the drying operations are so imperfect as to subject the ware to an atmosphere so charged with humidity that moisture condenses on the colder brick, which sometimes happens, the moisture thus condensed may readily penetrate the surface of the ware and take into solution large quantities of the salts.

(To be concluded in next issue.)

¹⁰Staley, Trans. Amer. Ceram. Soc., 17, 202 (1915). Layman, *Ibid.* 18, 265 (1916).

¹⁷Staley, Trans. Amer. Ceram. Soc., 17, 202 (1915).

¹⁸Kerl, Cramer and Hecht, *Abriß Tonwarenindustrie*, p. 523 (1907).

¹⁹Staley, Trans. Amer. Ceram. Soc., 17, 702 (1915).

A. C. S. Praises Canadian Hospitality

Guests See Wonderful Scenery, Magnificent Industrial Establishments and Many Treats Possible Only in Our Friendly Neighbor

THE 1922 SUMMER MEETING of the American Ceramic Society, which included a trip thru Canadian points of interest in the vicinity of Montreal, Ottawa, Kingston, Toronto, Hamilton and other cities, was unquestionably one of the most eventful and pleasant excursions in the history of that organization. Probably the most important result will be the strengthening of the bond of friendship and good will between the United States and Canadian members of the ceramic fraternity.

The Society was everywhere received with open arms, and every effort was made by the local committees to show the delegates a good time. That they succeeded will be borne out by everyone who made this trip.

The beginning of the meeting started very auspiciously with a beautiful boat trip from Rochester, N. Y., down the magnificent St. Lawrence River to Montreal. For those of the party who had never taken this trip before, the beauty of the rapids, the Thousand Islands and other spots on the river was a revelation.

Examine Montreal Harbor

Leaving Rochester on Sunday morning, the party, composed of about 55 people, including ceramic men, wives and friends, landed in Montreal Monday evening. The night was spent for the most part in passing expert opinion on Montreal's "spiritus frumenti," getting settled and gathering rest for Tuesday's work. The program committee had arranged an extremely interesting trip by tug around Montreal's magnificent harbor. Most of the party availed themselves of this opportunity to see the city's famed harbor facilities, but a few went out to Laprairie and visited the National Brick Co. and the Laprairie Brick Co. These two plants are owned by the same interests, and they are monstrous producers of brick,—common and face, one of them having eight continuous kilns of the Dunn type.

Tuesday afternoon was spent in interesting visits to the Consumers Glass Co. and the Gurney Enameling Plant. The plant of the Consumers Glass Co. is of large proportions and entirely modern thruout. Following the plant inspection the parties were driven around the city, giving those who had not previously been in Montreal an opportunity to see the town.

In America the South has the reputation of keeping open house for strangers, and Southern hospitality is famous thruout the country. It is safe to say, however, that all of the U. S. members of the A. C. S. got a taste of Canadian hospitality which

compares favorably with any ever received, and which will not soon be forgotten.

On Tuesday evening the Montreal local committee arranged an informal dinner, which proved to be one of the liveliest affairs the A. C. S. has had in recent years.

An early start brought the party to Buckingham on Wednesday morning, where the American Ceramic Society was taken in hand by O'Brien & Fowler. A ten-mile drive thru beautiful sections along the Lieve River brought them to the Derry feldspar mines. The party was intensely interested in the mining operations at these quarries. An excellent camp dinner at the mines was another treat added to the many courtesies extended to the tourists during the sojourn in Canada.

Another Red Letter Day

At six o'clock Wednesday evening the party arrived in Ottawa, however, somewhat thinned out. It seems that the entertainment at Montreal the night previous had proved a bit strenuous for some of those from the States, as there were a number who failed to make the train and were missing at Ottawa. A fine dinner and entertainment at Ye Olde Homestead Inn completed another red letter day in the 1922 summer meeting.

Thursday morning in Ottawa was devoted to visits to the Bureau of Mines, D. C. Merkley's clay plant, where the Minter System of burning is employed, the National Museum, and sightseeing trips around the city.

"Col." Purdy (a title which he acquired at Montreal) was the busiest man in Ottawa Thursday morning mustering the "bunch" for the train to Kingston and Verona. Arriving at Verona the party had an opportunity to inspect a remarkable feldspar mine, which, however, is not operating at present. It proved to be a most delightful afternoon, and some even got a chance to swim in one of the beautiful lakes which dot this country.

Invite American Capital

In the evening the party arrived on its special at Kingston, and was greeted by a delegation of local ceramic men and city officials. A most excellent banquet followed, during which men from Kingston spoke earnestly on the subject of American capital being invested in developing the mineral resources of that region.

Such things as tax exemption for ten years, a free site, all



A Few of the A. C. S. Group Comfortably Enjoying the Views Along the St. Lawrence River En Route to Montreal.



When It Comes to Telling Stories, the A. C. S. Crowd Is There. This One Probably Is About "Pat, the Irishman."



President F. H. Riddle (Left) "Posing" for Picture, is Very Much Interested in Something Ahead.



A View in Montreal's Large Harbor—One of the Greatest on This Continent.

possible support of the local government and other inducements were offered Americans.

Friday brought the party to Toronto, which had innumerable features of interest to the ceramists, such as the Standard Sanitary Works, Dominion Glass Co., Jefferson Glass Co., Don Valley Brick Co., Interprovincial Brick Co., Toronto University and other places. Most of the party visited the Jefferson Glass Co., manufacturers of pressed tumblers, pressed and blown illuminating ware and other products.

Friday evening the grand old man of New Jersey, Abel Hansen and his wife entertained the society and some Toronto friends at dinner. Afterwards a number of the party visited the home of R. F. Segsworth, the owner of the Richardson feldspar mines. He showed the visitors his large collection of ceramic ware and porcelain, which contains many interesting and remarkable specimens.

The trip ended on Saturday in Hamilton, where the General Porcelain Co., National Fireproofing Co., Canadian Libbey-Owens Sheet Glass Co. and a grinding wheel plant were the points of interest. The trip to Hamilton was made by boat.

Great credit is due to the local committee thru whose efforts the trip was made one of the most interesting and delightful ever tendered to members of the American Ceramic Society. Those in charge of arrangements were as follows: M. F. Gibson, Chairman, The Interlocking Tile Co., Toronto; N. B. Davis, O'Brien & Fowler, Ottawa; L. H. Cole, Department of Mines, Ottawa; Howells Frechette, Department of Mines, Ottawa; G. Perry Cole, Dominion Glass Co., Montreal; H. F. Dingleline, National Fire Proofing Co., Hamilton; R. F. Segsworth, Feldspar, Ltd., Toronto; Everett Townsend, Frontenac Floor & Wall Tile Co., Kingston; Randal K. Robertson, Cooksville Shale Brick Co., Cooksville.

Thanks to their hard work the 1922 summer meeting of the American Ceramic Society will linger long in the memories of those who were fortunate enough to have made the trip.



FOREIGN MADE BRICK MAY CAUSE DELAY

Construction of the model \$10-a-room apartments in New York suggested by the Lockwood Committee, and which is being financed by the Metropolitan Life Insurance Co., is being delayed by the high prices of building material, especially of brick. However, the builders engaged in this project have no intention of utilizing the foreign made brick now being sent to this country. According to Henry Iron, one of the builders on the job, there are several drawbacks to the foreign brick, one being the shape, and another the possibility of meeting with opposition from American bricklayers. Members of the Associated Builders of Kings County, who are awaiting the arrival of the first two ship-

loads of brick from Danzig, say they have contracted for brick about the same size and shape as the American common brick, and have no fear regarding the attitude of American bricklayers.



FUTURE LABOR CONDITIONS

In many sections of the country, increased business and production has caused a shortage of available labor. This has resulted in consideration by students of conditions to advocate a change in the immigration laws. Under present conditions, the Dillingham law, which restricts immigration to those who are candidates for citizenship, will remain in force until June 30, 1924. If construction and general business continue to improve at the present rate, this law may prove a deterrent factor to this increase.



SILO WILL HELP IN FEED LOT

With prospects bright for considerable activity in the feed lots of Iowa, due to the attractive feeding conditions, every farmer who is short of good alfalfa or clover hay will find profit in a silo, says John M. Evvard of the Iowa Agricultural Experiment Station. With a silo filled with good succulent feed the cattle can be rounded into shape rapidly and a good relative return gotten.

Silage is good feed for all kinds of cattle. It is excellent for beef cattle and due to the acceptable form in which it comes out of the silo in the winter it makes an ideal and palatable roughage to feed all classes of cattle.

Since there will be but little incentive to cut down on the grain ration this winter due to the large crop of relatively low priced corn it should be a good year for those who have silos.



SELLING BRICK BY RADIO

Selling the idea of brick as a substitute for cheap frame construction by radio, for perhaps the first time in the history of Texas, was done recently in Dallas, Texas, by J. Howard Payne, vice-president of the Frazier Brick Company. Mr. Payne spoke over the Dallas News Journal broadcasting station, recently established in that prosperous Texas metropolis, by special invitation from owners of the newspapers. Incidentally his arguments appeared later to the tune of a column and a half in the Dallas News, and they consequently must have reached upwards of some 100,000 people. His subject was "Home Building" and he called attention to the fact that for 5 per cent. more a home could be built of fireproof, permanent materials, and that a frame house would cost the owners in years to come a greater cash outlay than the permanently constructed home.

FINE CERAMIC MANUFACTURE



A Department Devoted to Practical Problems in the Manufacture of Higher Grade Ceramic Products such as Whiteware, Including Electrical Porcelain, Floor and Wall Tile, Sanitary Ware, etc., as Well as Stoneware, Terra Cotta, Special Refractories and Other Articles Where High Grade Clays Are Employed in Their Fabrication.

POTTERS ENJOY SUMMER MEETING

FOLLOWING the plan inaugurated by the American Ceramic Society in arranging a mid-summer meeting, the United States Potters' Association held its first summer meeting this year August 2 to 4 in Trenton, N. J., where in 1876 the idea of forming an association of pottery manufacturers was conceived. Heretofore the manufacturers have met during the summer, but such gatherings were quite unlike that recently held.

This year dinnerware manufacturers visited competitive shops to "see how it is done." This follows the plan of the American Ceramic Society at their summer gatherings—inspect the plant of the other fellow—and then go away enlightened.

About sixty members of the trade attended the gathering at the Stacy-Trent Hotel in Trenton, to consider first, some thirty-odd propositions which had been submitted for changes in the present wage scale by the National Brotherhood of Operative Potters. When this discussion was finished, the manufacturers visited ceramic plants in the Trenton district and enjoyed a pleasant social entertainment as guests of the Trenton manufacturers.

At the close of the executive session of the Association, the Labor Committee, of which W. E. Wells, of the Homer Laughlin China Co. is chairman, was advised of the desires of the trade, and while no official statement has been forthcoming from members of that committee, it is the general belief that the manufacturers have left the entire situation in the hands of its committee under the same injunctions as in previous years. It was after the executive session that the remark was made that "it was our view that the potters would consider themselves fortunate if the employers refrained from seeking a further reduction of wages."

Potteries Have Been Prosperous

And then this salient remark was made by President Frank P. Judge, of the National China Co., of Salineville, O., during the Trenton meeting: "Business has been good with the generalware potters all thru the depression and the outlook is encouraging unless acute conditions should be developed by the railroad and coal strikes."

Other members of the Association expressed the opinion that the pottery industry has been kept active, largely because of the fact that a wage reduction was brought about last year.

The wage propositions submitted by the operatives to the manufacturers will be discussed during a joint conference

scheduled to open in the Hotel Cleveland, Cleveland, O., August 23. Whether the manufacturers will present counter proposals has not been indicated by those in close touch with the affairs of the Association.

The afternoon of August 3 was spent by the visiting manufacturers inspecting the plants of Lenox, Inc., and the new plant of the Mutual Pottery Co. The former, manufacturers of the finest china yet produced, and the latter the largest sanitary shop in the world proved of unusual interest to the generalware manufacturers.

The meeting in the Stacy-Trent Hotel was opened by Charles Howell Cook, long a member of the Association, and who has been engaged in the generalware and electric porcelain business in Trenton for many years. He reviewed the plan of the Trenton manufacturers back in the 70's to form an association of "dinnerware manufacturers" and then extended a cordial welcome to the Association, closing with the suggestion that "you all come back again next year." The response was by Frank P. Judge, president of the United States Potters' Association.

An added feature of the Trenton meeting was the presentation of reports from the Research Committee of the Association, now in its first year. Thomas B. Anderson, general manager of the Pope, Gosser China Co., Coshocton, Ohio, told of results of firing the four bisque kilns on this plant with oil.

Life of Saggars Important

Mr. Anderson was followed by A. V. Bleininger, in charge of the research department of the Homer Laughlin China Co., of East Liverpool and Newell, W. Va., who spoke on "Sources of Kiln Dirt." Referring to the loss of saggars, Mr. Bleininger gave it as a matter of record that the life of saggars had been variously estimated at from ten to thirteen firings with an average loss of from eight to ten per cent. of saggars in each kiln.

In this connection, Marc Solon, of the Mercer Pottery Co. Trenton, observed that thru the continuous sifting of glaze, the conclusion had been reached that sand specks had been virtually eliminated. The salient point in a discussion led by Samuel B. Larkin, of the National China Co., of Salineville, O., was the effectiveness of 50-50 cement and plaster in the life of cases for casting.

John S. George, of the W. S. George Pottery Co. of East Palestine, O., lead a discussion on "Lawns." During the meeting, Mr. Bleininger reviewed a paper previously presented by Mr. George where comparisons were made on the Orton and Mayer cones, as to the temperatures where they inclined. Melting point tables for pyrometric cones which formed a part of this paper proved of unusual interest to the manufacturers.

New Domestic Clays of Good Quality

New American clays were referred to in a paper which had been previously presented to the Research Committee by Ira A. Sproat, of the Sebring (Ohio) Pottery Co., and submitted by Mr. Bleininger for the author. Another paper prepared by Mr. Sproat discussed the use of cobalt

sulphate as a body strain for semi-vitreous ware. It was the opinion of Mr. Sproat that the use of this chemical was more desirable because it caused less trouble than other forms of cobalt. In his paper on American clays, Mr. Sproat observed that three new domestic clays had been discovered during the last year, these in Tennessee, North Carolina and Missouri. The Missouri clay is a cross between a ball clay and a china clay and can be substituted for equal parts of both. The new Tennessee clay is the property of R. T. Vanderbilt, of New York, and when substituted for English china clays makes a body of marked translucency. The North Carolina clay has been presented to the trade by the Carolina Clay Co., of Wellsville, Ohio, of which R. L. Cawood of East Liverpool is the head.

The Association pledged its hearty co-operation with the United States Bureau of Standards in the study of all subjects relating to the industry.

In the discussion of saggars, which was lead by Mr. Bleininger, unusual interest was created. A report blank is to be forwarded all generalware pottery manufacturers by the Research Committee, and from this data a close study of the sagger question is to be made. It is common knowledge among the manufacturers that much room exists for saving in saggars, and the reports the manufacturers may submit will be made a subject of continued study.

Rail tariffs as they relate to the generalware industry were discussed by the Association in detail, and this discussion resulted in the Association approving the suggestion that a general protest be filed with the carriers that such proposed changes are unjust and inconsistent.

The annual meeting of the Association will be held in Washington next December, at which time officers for the forthcoming term will be elected.

* * *

ALLIANCE CHINA INCREASES CAPITAL

Papers have been filed with the secretary of state increasing the capital of the Alliance (Ohio) Vitreous China Co., from \$50,000 to \$100,000 in order to increase facilities of the plant.

* * *

TO BUILD \$20,000 ADDITION

The General Porcelain Co., Parkersburg, W. Va., will commence the immediate erection of an addition to its plant for increased production. It will be one story, 65x225 feet, and is estimated to cost about \$20,000.

* * *

ORGANIZE POTTERY COMPANY

George W. Bowers, Mannington, W. Va., is organizing a company to construct and operate a pottery in the vicinity of Grafton, W. Va., for the manufacture of chinaware products, it is said. Plans will be prepared at an early date.

* * *

PLAN TO MANUFACTURE PORCELAIN PRODUCTS

The Freeman Electrical Co., 803 East State Street, Trenton, N. J., is arranging for the erection of a new plant addition for the manufacture of electrical porcelain specialties, estimated to cost about \$50,000, including equipment. Plans have been prepared.

* * *

WILL BUILD 18 KILN CHINA PLANT

A china factory, employing 1,300 men will be erected in Valparaiso, Ind., within the next two years, according to an announcement recently by Walter Luttringhaus, of Chicago, head of the American China Products Co. The new factory will have 18 kilns. Theodore Dittel, manager of the company's plant at Chesterton, Ind., is to be general manager of the new plant.

MAY BUILD SANITARY WARE PLANT

The Healey-Bedson Pottery Co., Trenton, N. J., recently incorporated with a capital of \$100,000, has plans under way for the erection of a new pottery in Ewing Township, near Trenton, for the manufacture of sanitary ware. It is expected to commence work at an early date. The company is headed by Stephen J. Healey, Sr. and Jr., and J. Harry Bedson, all of Trenton. Mr. Healey, Jr., represents the company.

* * *

ESTABLISHES SOUTHERN BRANCH

Knowles, Taylor & Knowles, East Liverpool, Ohio, manufacturer of chinaware and semi-porcelain hotel ware, has established a branch distributing office and warehouse at 1511½ Commerce Street, Dallas, Tex., to handle southwestern territory. The local branch will be under the direction of Fred Kline. A complete stock of ware will be carried.

* * *

RARE CERAMICS WILLED TO MUSEUM

By the death of William M. Grinnell, of New York City, his vast collection of Persian faience pottery has been left to the Metropolitan Museum of Art. Many pieces of art tile are included in the collection. Grinnell achieved fame as an architect, and was a noted collector of ceramics from all parts of the world.

* * *

LARGE DEMAND WILL FOLLOW STRIKES

Increased demand for dinner ware will follow settlement of the railroad and coal strikes, according to pottery manufacturers at East Liverpool, Ohio. Altho most of the plants in that vicinity use gas for kiln firing, business has been affected by the two tie-ups.

* * *

DOUBLE CAPITAL FOR EXPANSION

The Alliance Vitreous China Co., Alliance, Ohio, has filed notice of increase in capital from \$50,000 to \$100,000, for proposed expansion.

* * *

QUARTERLY DIVIDEND DECLARED

The Trenton (N. J.) Potteries Co. distributed a quarterly dividend of one per cent. on the non-cumulative preferred stock to owners of record of July 20.

* * *

TEAPOT LINE ENLARGED

The Hall China Co., of East Liverpool, O., manufacturers of vitrified fireproof cooking ware and teapots, has added another shape to its teapot line. The entire line is to be had in three colors, green, brown and blue and in a wide variety of decorations as well as the plain effects. Both plants of this company are in active operation.

* * *

POTTERY EXHIBITED AT NEW YORK SHOW

The complete line of art pottery made at the plant of the Fulper Pottery Co., at Flemington, N. J., was exhibited at the Merchandise Fair held in the Grand Central Palace, New York, during that exhibition season which opened August 7 and will close August 25.

* * *

NEW DINNERWARE LINE

Following a brief summer holiday, the plant of the Crooksville China Co., at Crooksville, O., has resumed oper-

ations. This company is now working out its new line of open stock dinnerware for the 1923 trade, and the offerings will be presented to the trade for the first time at the Ft. Pitt Hotel pottery exhibition in Pittsburgh, Pa., next January.



THIS YEAR EXCELS TWO YEARS PREVIOUS

South American countries are proving very active customers for American sanitary ware. This coupled with the domestic demand has caused the majority of all sanitary shops to increase production over the schedules of last year. One Trenton sanitary plant is sold up for the current year, the bulk of the output being for domestic consumption. Several sanitary concerns report 1922 sales greater than the combined business of 1921 and 1920.



SANITARY POTTERY SELLS YEAR'S OUTPUT

Demand for sanitary pottery has been so strong that one of the largest Trenton, N. J. companies sold the output of its plant for this year within three weeks after the opening of the season, a quantity greater than the combined total sales in 1920 and 1921, says the Public Ledger, Philadelphia. South American countries form an important potential market for such commodities, but it is claimed there is little immediate prospect of sales because of the entirely different standards of measurement.



PERTH AMBOY PLANTS HAVE ANNUAL OUTINGS

The clay plants are leading in the matter of get-together outings this year in the vicinity of Perth Amboy, N. J. Employes and officials of the General Ceramics Co. plant at Woodbridge recently enjoyed a day's outing at the Terra Marine Inn, Staten Island. Athletic contests and a baseball game featured the entertainment, followed by a big shore dinner. The trip was accomplished by motor trucks.

The county clay workers' association entertained Senator Joseph Frelinghuysen at its annual clam bake recently. Members of the association played quoits and talked business conditions between courses of the feast, and later had the pleasure of listening to an address by the senator.

Employes of the Atlantic Terra Cotta Co. recently made their annual trip to the Rocky Hill plant of this company, and a baseball game for the championship of the company was the main feature. It is understood that the Atlantic Co. is also planning an excursion up the Hudson River, as they did last year.



MANY NEW POTTERY KILNS

Production of generalware in the United States will be increased on a larger scale during the next twelve months than has been recorded in a similar length of time in many years. No less than 24 kilns are now listed for construction, and before the year ends this number may be augmented considerably, especially when the extension plans of the French China Co., at Sebring, O., are finally decided upon.

The Owen China Co. at Minerva, O., of which Charles W. Foreman is the head, has its program completed for the erection of an eleven-kiln unit, and this new shop may be placed in operation during the first quarter in 1923. This additional capacity has been deemed a necessity as the company proposes to increase and broaden the distribution of its open stock dinnerware.

Six additional kilns are to be built for the Saxon China Co., and the French China Co., at Sebring, and plans for

the erection of a seven kiln plant at Sebring by the Sebring Pottery Co., are being made.

The 24 kilns spoken of are assured as an extension program this year, and it may follow that the French China Co. will erect an additional unit of 12 or more kilns early in 1923.

Not since the Homer Laughlin China Co., erected its mammoth plant at Newell, W. Va., have such extensions been contemplated in the generalware industry altho the capacity of the sanitary branch of the trade has been augmented on liberal scales during the last few years.

There is a very good reason for such an extensive program. It very properly can be traced back to the late war period, when distributors could not obtain foreign merchandise, and the American manufacturer began to lay plans for the future. It is not denied that the highest class of dinnerware was marketed by American manufacturers during the height of the period, but since then, while receipt of imported ware has remained at a rather low ebb the quality of the American ware has been improved so rapidly that today American lines are quite superior to many of those imported.

Therefore the American buyer, both distributor and consumer rests content in the thought that American dinnerware is as good as many of the imported lines, and at times superior, both in quality and also decoration. By improving the quality of the American ware, the American pottery manufacturers have sown a seed that means much to the trade as a whole.

There is one avenue of trade which the American pottery manufacturer has barely scratched, and that is export business. It is admitted that increased production of American potteries is being absorbed by increased domestic demand, and at a loss to the importer. True, some American dinnerware is being exported, but the volume is small.

When the Empire China Co., of Burbank, Calif., opened the first generalware pottery on the Pacific Coast, many were of the opinion that it would seek export business, but, since the first kiln of ware was drawn in that shop, the firm has been engaged solely in supplying domestic demand in its own territory. This seems to indicate that American buyers are absorbing practically all of the output of the American potteries, and that it has not been necessary for any American pottery manufacturer to seek export business.

Erection of new kilns, therefore, does prove that the American pottery industry is not retreating, but ever advancing, both in quality of merchandise and also demand for the product.



COAL SCARCITY LEADS TO USE OF OIL

Pottery manufacturers in the upper Ohio Valley, both on the Ohio and West Virginia sides of the Ohio River have been inconvenienced very little because of the coal scarcity. By and thru the increased use of oil and gas for kiln firing purposes, practically normal kiln schedules have been maintained. Here and there changes have been made in boiler houses, gas being substituted for coal. The same rule obtains most generally thruout the eastern Ohio pottery district.



FIND MAGNESITE IN SOUTHERN NEVADA

A massive deposit of magnesite of unusual character that has recently been brought to the attention of the United States Geological Survey promises to yield a large and readily available supply of this material. The deposit lies in Clark County, Nev. The material has been known for some time as kaolin, and successful experiments for utilizing

it as a porcelain clay are reported to have been made though they have not yet resulted in the exploitation of the deposit. The recognized outcrops have been located as mining claims, and some preliminary exploration and development work has been done. A side track on the St. Thomas branch of the Los Angeles & Salt Lake Railroad, about three miles northeast of the northernmost group of claims, offers a readily available railroad connection, and the station has been named Kaolin from this deposit.

* * *

STUDYING LABOR EFFICIENCY

To determine the productivity and efficiency of labor in the United States a series of tests has been prepared by the National Committee on Labor Efficiency and Production to be applied to workmen in representative industries in the various states. The building trades comprise the first industry to receive consideration as it operates thruout the country and insofar as the number of men employed is concerned, is the largest single industrial unit of the nation.

The work of the committee is concerned primarily with the efficiency of the workman on the job. Necessarily, however, this efficiency is affected—either restrained or augmented—by other factors. To the extent that this operates, the contributory factors will be considered. The intention of the Committee of Labor Efficiency and Production ultimately is to extend its investigation to such other industries as admit of the application of such tests.

* * *

INCLUDE CLAY IN LECTURE SERIES

Brick, tile and associated clay product industries will be one of the subjects covered in a series of lectures on the Geology of Commerce and Industry which has recently been announced by the New York University. The purpose of the course is to acquaint students with the fundamental facts underlying the country's mineral and raw material situation. The character and source of supply, the methods and cost of preparing raw materials for market, and their relation to other lines of business will be treated.

* * *

FLOWER POT AND STONEWARE SALES GOOD

The Louisville Pottery Co., at Louisville, Ky., reports a very active season as a result of the unusually heavy fruit crops, as well as vegetable crops, resulting in much better demand for its stoneware lines. The housewives, as well as packers and canners of such products, are all quite busy at the present time. The florist or flower pot end has been fair, but florists are a bit worried over their fall fuel supply and are a bit backward about buying now.

The company has not had any trouble so far in getting clay from its Indiana mines, but has had some trouble in securing enough fuel to keep going at the local manufacturing plant.

* * *

CERAMIC TILE AND ACCESSORY PLANTS MERGE

A combination of considerable size is represented by the Empire Floor & Wall Tile Co., Inc., 137 West 25th Street, New York. A merger of the J. B. Owens Floor & Wall Tile Co. and the China Products Co., both of Zanesville, Ohio, and the Empire Floor Tile Co. of Metuchen, N. J., has recently been consummated, and the combined concerns will hereafter be known by the above name. Floor and wall tile are being made in Zanesville and bath room accessories and china products at Metuchen. The sales department is in charge of J. P. Carling, formerly with the

China Products Co., who will be located in New York and Metuchen. Supervision of both plants is in charge of Malcolm A. Schweiker of Philadelphia, vice-president and general manager. Besides Mr. Carling and Mr. Schweiker, the personnel is as follows: J. B. Owens, president; E. C. Luther, secretary-treasurer; Charles S. Powell, and A. H. Schultz.

* * *

BIENNIAL POTTERY WAGE CONFERENCE

Interest in the pottery industry in Ohio as well as in other parts of the country centers this week in the preparation for the opening in Cleveland on August 23 of the biennial wage conference between representatives of the National Brotherhood of Operative Potters and the Labor Committee of the United States Potters Association.

Proposals calling for changes in the present wage agreement which expires October 1, were drafted recently at the Atlantic City, N. J., convention of the operatives and submitted for the consideration of the manufacturers at their midsummer meeting in Trenton, N. J., the first part of August.

Despite the railroad and coal strikes which are affecting plants in some districts, there was no let up in pottery production in the East Liverpool district during the past month.

New business continues in favorable receipt, while buyers are visiting the market. Orders for fall and holiday merchandise are expected to pour in the latter part of August.

* * *

TILE INDUSTRY IN THE SOUTH OF FRANCE

Owing to the presence of unusually fine deposits of ferrous clay in the Department of Bouches-du-Rhone the tile industry has been prosperous in and near Marseille since earliest history. More than 43 factories are producing high grade roofing tile and hollow brick from this light, tough, and agreeably-colored material. The exportations alone have often surpassed 150,000 tons; and the annual production is said never to fall short of that figure.

The principal purchasers prior to the war were Brazil, Turkey, Australia, Russia, and Cuba; but considerable quantities have been sent to very many other countries. At the present time shipments are still being made to the United States, especially of hexagonal flooring tile of the characteristic deep maroon color.

The industry is suffering to some extent by the establishment of local brick and tile works in the southern hemisphere; but the lightness and durability of the Marseille product is preserving markets even against locally manufactured goods in South America and Australia.

The exportations from Marseille in 1913 amounted to 43,924 tons of tiles for floors, 28,030 tons of brick, and 187,759 tons of roofing tiles. The figures for recent years are not available, but are unquestionably much lower. The total exportation of ordinary brick from France in 1921 was only 63,000 tons, and the total exportations of ordinary tile 37,000 tons.

The freight on full cargo lots by sailing vessels from Marseille to Havana on brick and tile now approximates 50 francs per ton, while the same freight to Smyrna or Beirut would be from 30 to 40 francs per ton. The price of ordinary brick is 158 francs per thousand, while the price of hollow brick, slightly smaller, is 86 francs per thousand. This difference in price indicates the intrinsic value of the fine clay from which the products are made. Floor tile one-fifth of a meter square and one-fiftieth of a meter thick, counting 20 to the square meter of floor space, and weighing about 1½ pounds each, are valued at 370 francs per thousand.

The Superintendent

Helpful Hints for Practical Men Whose Problem is Maximum Production with Minimum Cost

CO₂ IN FLUE GAS WHEN BURNING OIL

An error in interpreting the CO₂ content in flue gas when burning oil is likely to arise among engineers who have been familiar with coal burning. This comes from the fact that perfect combustion of coal would give a higher CO₂ reading than perfect combustion of oil.

An example will help to show the reasons for this. Assume first a sample of coal having 71 per cent. carbon, 4 per cent. hydrogen, 8 per cent. oxygen and the remainder ash, etc. The carbon in each pound of coal will require for complete combustion $0.71 \times 2\frac{3}{4} = 1.95$ lb. of oxygen. The hydrogen will require $0.04 \times 8 = 0.32$ lb. of oxygen. The total oxygen required will be $1.95 + 0.32 = 2.27$, less the 0.08 lb. already in the coal, which leaves 2.19 lb. to be furnished by the air. This amount of oxygen is contained in $2.19 \div 0.23 = 9.53$ lb. of air, which will bring with it 7.34 lb. of nitrogen. The diagram, Fig. 1, shows these values graphically. The 0.73 lb. of carbon in 1 lb. of coal will produce $0.73 \times 3\frac{2}{3} = 2.68$ lb. of CO₂ in the flue gas. The hydrogen will form 0.36 lb. of water vapor, which will condense before reaching the flue-gas apparatus and so will not appear in the analysis. Therefore, for each pound of coal the flue gas will contain 2.68 lb. of CO₂ and 7.34 lb. of nitrogen, or a total of 10.02 lb. of gas. This gives $(2.68 \div 10.02) \times 100 = 26.7$ per cent. CO₂ and $(7.34 \div 10.02) \times 100 = 73.3$ per cent. of N by weight. Since the ratio of

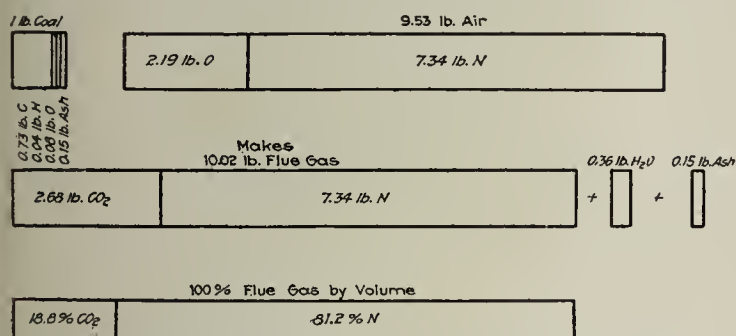


Fig. 1. Diagram Showing Flue Gas Produced by Perfect Combustion of Coal.

the weights of N to CO₂ is 14 to 22, the relative volumes will be $26.7 \div 22$, or 1.21, for CO₂ and $73.3 \div 14$, or 5.24, for N. The percentages by volume will then be $1.21 \div 6.45$, or 18.8 per cent. CO₂ and $5.24 \div 6.45$, or 81.2 per cent. N.

Assume, now, a typical sample of oil containing 85 per cent. carbon, 12 per cent. hydrogen and 3 per cent. oxygen. The carbon will require 2.27 lb. of oxygen and will produce 3.12 lb. of CO₂, while the hydrogen will require 0.96 lb. of oxygen and produce 1.08 lb. of water vapor, per pound of oil burned. The net oxygen required will then be $2.27 \times 0.96 = 0.03 = 3.20$ lb. This means the introduction of 13.91 lb. of air containing 10.71 lb. of nitrogen. Remembering that the water vapor will be condensed, the flue gas per pound of oil will be $3.12 + 10.71 = 13.83$ lb. having a composition by weight of 22.5 per cent. CO₂ and 77.5 per cent. N. Reducing this to percentage by volume gives 15.6 per cent. CO₂ and 84.4 per cent. N. The diagram in Fig. 2 illustrates these computations for oil.

In comparing the two cases figured it must be remembered that they refer to the ideal condition where all the combustible is completely burned and no excess air is supplied. In other words, they represent the best theoretical conditions. Comparing the particular samples taken, oil could not possibly give a higher CO₂ reading than 15.6 per cent., while the coal theoretically might give 18.8 per cent.

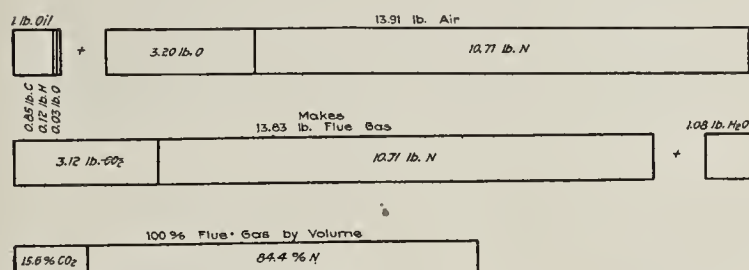


Fig. 2. Diagram Showing Flue Gas Produced by Perfect Combustion of Oil.

The explanation of this lies in the greater amount of hydrogen in the oil. The hydrogen requires oxygen for its combustion, and this in turn brings in nitrogen, which appears in the flue gas. The hydrogen does not produce CO₂, and the water vapor that it does produce does not appear in the flue-gas analysis. The result is that the higher the hydrogen content in the fuel the lower the theoretical CO₂ percentage in the flue gas.

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OXIDATION OF CERAMIC WARES DURING FIRING

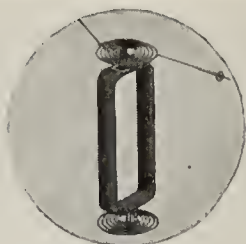
In the study of the oxidation of ceramic wares during firing, being conducted at the Columbus, Ohio, experiment station of the Bureau of Mines, substantial progress is being made in the investigation of the rate of evolution of sulphur dioxide and trioxide at different temperatures and atmospheres. This work has reached a point where it was deemed advisable to check laboratory work with industrial practice. Samples of flue gases at all stages of the burn were recently collected at the plant of the Fallston (Pa.) Fire Clay Company. Observations of the so-called "blue smoke" were made at this plant.

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SHORTAGE OF LABOR DESPITE UNEMPLOYMENT

According to the Industrial News Survey of the National Industrial Conference Board, there has been little change in the industrial situation recently. With the railroad, coal mining and textile disputes still unsettled, a depressing effect on business generally is evident. Altogether over 1,260,000 persons are voluntarily idle thru strikes and since the beginning of July, 63,000,000 man-hours of work have been lost each week. Estimating the average wage of labor at 50 cents an hour, the wage loss alone since the first of the month has been approximately \$94,500,000 and is proceeding at the rate of over \$5,000,000 a day. It is pointed out that this has resulted in a serious contraction in purchasing power, which is likely to affect future employment and general business conditions.

What's "under the hood" of Brown Pyrometers



first of a series
The movable element

Watch making has no problem like this. This assembly requires 13 parts and 43 operations. It weighs the same when finished as the common pin—35 to the ounce.

Three layers of 50 turns (150 turns) of .003" copper wire are heavily cemented together and baked and the form removed. To both ends are cemented diminutive aluminum brackets that form an anchorage for the ground steel pivots and the hair springs. The springs, pivots and the hollow aluminum pointer are then attached.

With jewel bearings at each end having a normal bearing speed almost too slow to be measured, and weighing 1/1750 oz. per ohm resistance—this is perhaps the most sensitive, most nearly dead-beat, most sturdily constructed and longest lived of all pyrometer movable elements.

THE BROWN INSTRUMENT CO.
Wayne Junction Philadelphia, Pa.

New York Pittsburgh Detroit Cleveland Chicago
St. Louis Denver San Francisco Los Angeles Montreal

Brown Pyrometers
Most used in the world

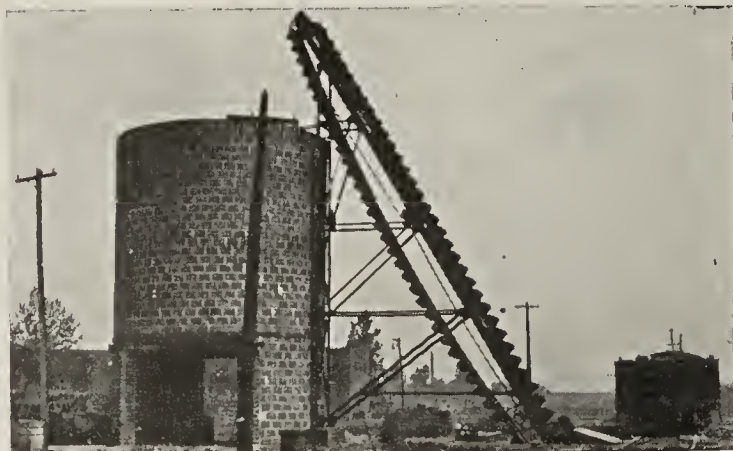
SUNBURY

**AUTOMATIC
CAR UNLOADER**

Loads or unloads coal at the rate of 30 to 50 tons every hour. Only one man needed.

Let us tell you what other clay plant operators are doing with the Sunbury in saving time, money, and labor.

The Sunbury Manufacturing Co.
Sunbury, Ohio



*In the Wake
of the News*

Being Brief Mention of a Host
of Interesting Happenings in the
Varied Fields of Clayworking

NEW JERSEY MANUFACTURER SUCCUMBS

Nathan R. Ivins, Trenton, N. J., at one time well known in the brick manufacturing business in that city, died August 2, at his home, 115 West State Street, at the age of 78 years. For many years he was associated with H. C. Kafer in a local brick plant. Mr. Ivins is survived by his widow.

PROMINENT BRICK MANUFACTURER DIES

Charles F. Thomas, senior member of the firm of Charles F. Thomas & Son, Buckeystown, Md., manufacturer of brick, died at his residence at that place, August 2, aged 73 years. He was one of the county's best known citizens, and prominent in important civic matters. He commenced the manufacture of brick there in 1902 under the name that has continued with the company since that time. He is survived by his widow, two sons and three daughters.

HAS TAKEN OVER BUILDING MATERIAL SALES

L. M. Parsons, who has spent most of his life in the building material business, and who has sold a great deal of brick and clay products in the Louisville, Ky., district, has recently made a connection with the Tway Coal Co., of Louisville, and will have charge of the building material division.

WELL KNOWN CLEVELAND MAN CHANGES

Another important addition to the Cleveland (Ohio) Clay Products Co. is the appointment of J. M. Beville as manager of the retail brick department. Mr. Beville is one of the best known brick experts in the central west and eastern sections of the country, having spent practically all his business life in the brick industry. Until recently he was manager of the face brick department of the Cleveland Builders' Supply & Brick Co., and prior to that was associated with the old Farr Brick Co. and the Hydraulic-Press Brick Co.

ASSUMES CHARGE OF NEW DEVELOPMENT

Ralph P. Stoddard, secretary-manager of the Common Brick Manufacturers' Association, has been made vice-president of the Moreland Courts Co., and will have direct charge of all work pertaining to the new Moreland Courts development in Shaker Heights, Cleveland. Moreland Courts is a part of the \$30,000,000 apartment house development announced two months ago by the Josiah Kirby interests. A suite of offices with Mr. Stoddard in charge has been opened by the company at 801 Discount Building. C. B. Reemelin, formerly with the Kirby organization at Erie, Pa., is associated with him.

EXPERIENCE IN INDUSTRY ENLARGES SCOPE

G. W. Greenwood, well known in the clay industry thru his activities in the Refractories Accountants Institute, as well as in his position as treasurer and director of the United Refractories Co. at Dunbar, Pa., has recently become associated with Curwin's Accountancy Co., Inc., of South Bend, Ind., and is now resident manager for Pennsylvania, with the exception of Allegheny and Philadelphia Counties. Mr. Greenwood is located at 313 Coal Exchange Building, Wilkes-Barre, Pa. At the same

time he will continue as a director of the United Refractories Co., but instead of being treasurer he is now secretary. At the last meeting of the Refractories Accountants Institute, held in Washington, Mr. Greenwood was elected chairman for the present year.

ENGINEER TO BE BRICK DEALER

W. N. Bosler, engineer with the State Highway Commission, Kentucky, has resigned to go with the R. B. Tyler Co., Louisville, dealers in brick and general building supplies. Mr. Bosler has been with the state department a number of years, and has been Assistant Engineer for over three years.

QUICK ASSISTANCE CURTAILS LOSS

The Barton Brick & Lumber Co., of Jonesboro, Ark., was threatened by fire recently, but the flames were extinguished before much damage was done. A loss estimated at \$2,000, however, was sustained.

MANY ORDERS WAITING FOR NEW PLANT

Manager Louis Steiger of the brick plant north of Vallejo, Cal., reports more orders for brick than can be produced for some time after his new plant is in operation. Sixteen kilns, each holding 40,000 brick, are being placed in condition for the first burning, which will soon be commenced. George T. Little is superintendent of the plant. They are making experiments with paving brick, which if successful may procure an order for 4,000,000.

PLAN BIG INCREASES IN OUTPUT

L. S. Collins, general manager of the Los Angeles (Cal.) Brick Co. declares that deliveries of common brick so far this year are double the volume of last year for the same period, and that all the manufacturers have been straining their facilities to meet the demand and reduce the complaints of the builders and contractors because of delays in delivery of this form of supplies. The heavy rains have interfered with the plans of the brick manufacturers to a greater extent than is usual in the case of Southern California winters.

Mr. Collins announces that his company will start soon to double the capacity of their plant No. 3, and that by the introduction of new labor-saving automatic machinery they expect to be able also to double the capacity of Plant No. 1, in Chavez Canyon.

For the latter plant the Los Angeles Brick Co. has purchased and is now installing the first automatic soft mud brick machine and the first steel pallets put into commission west of the Mississippi River which they hope to have in operation within 30 days. This machine makes the brick in the mold and in a continuous automatic process "strikes" them, dumps them on the steel pallets and conveys them to the cars for the dryer. The addition of this machine will double the capacity of plant No. 1, to 75,000 brick per day, and with the doubling of the output of plant No. 3 the Los Angeles Brick Co. will be able to meet the increasing requirements of the local building situation.

PARTIALLY DAMAGED BY FIRE

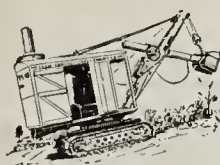
Damage of approximately \$2,000 was done by fire which destroyed part of the Merwin Brick Co. plant at Berlin, Conn., on July 28.

FORM COMPANY AT WILMINGTON

The Saxton Shale Brick & Tile Co., Wilmington, Del., has been formed under state laws with a capital of \$100,000, to manufacture brick, tile and kindred burned clay products. The company is represented by Leonard E. Wales, Equitable Building, Wilmington.



**"No Shovel can beat the
'A' ERIE for a clay pit"**



ERIE Shovels can be had either with broad tired traction wheels, standard gauge car wheels, or on the ERIE lubricated caterpillar type mounting. All easily interchangeable on the same truck frame.

Writes G. W. Isenhour & Sons—

"We have been digging stiff pipe clay with our 13-ton ERIE Shovel for the last 18 months, and its low cost and ease of operation have proven it an excellent machine for our work. The 'A' ERIE is giving us most satisfactory results"—G. W. Isenhour, Pres., G. W. Isenhour & Sons, Salisbury, N. C.

The Type "A" ERIE often does the work of a much larger shovel and saves you money both in first cost and operating cost. We have an interesting bulletin showing just what the "A" can do on clay and shale excavation, as well as many other classes of work. Write for Bulletin B-22.

ERIE STEAM SHOVEL CO.

Formerly Ball Engine Co., Erie, Pa., U. S. A.
Builders of ERIE Steam Shovels and Cranes

ERIE Revolving Shovels



A Valuable Machine To Every Clay Man

The needs of the brick and clay plant are different today than they have ever been. Competition demands that production costs be REDUCED—that high speed production be resumed, and quality ware PRODUCED.

The clay products manufacturer who employs the Marion "Rust Special" Feeder Mixer to mix and temper his clay, is going to take the lead in 1922, because the Marion does reduce costs and does better the quality of the ware.

Write us for prices and particulars

**MARION MACHINE FDY.
& SUPPLY CO.**

P. O. Box 395

Marion, Ind.



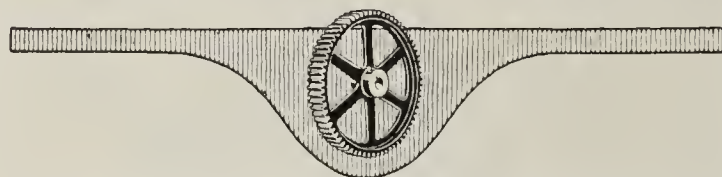
HELICOID CONVEYOR

CONTINUOUS flights (without laps or rivets), and heavier flights on larger pipe, make Caldwell Helicoid Conveyor by far the best on the market. It is the recognized standard conveyor of this type.

The price is no more than for ordinary screw conveyor.

H. W. CALDWELL & SON CO. LINK-BELT COMPANY, OWNER
Dallas, Texas, 709 Main Street—Chicago, 17th Street and Western Ave.
New York, Woolworth Bldg.

CALDWELL



C-5

Increase the value of your product by improving
the color with

LAVINO BRAZILIAN MANGANESE

"Best for Face Brick"

Economical

Adaptable to any Clay

Intense Staining Powers

Various Effects Obtainable

Uniform Analytically and Physically

Liberal samples and full information
gladly furnished upon request.

E. J. LAVINO and COMPANY

Bullitt Building

Philadelphia, Pa.

Grinding Plant: Plymouth Meeting, Pa.

FLORIDA PLACES LARGE PAVING ORDER

The Southern Clay Manufacturing Co. of Warrior, Ala., has received a \$300,000 order for paving brick to be used on College Avenue, Tallahassee, Fla.

COINS NEW WORD FOR TRADE NAME

"Veltone" is the trade name of a new brick now being produced at the Atlanta plant of the F. Graham Williams Brick Co., according to a recent announcement. It is made in all red or all brown or a red and brown blend, and is for exterior walls.

DISPOSES OF PART INTEREST

George A. Kearney has disposed of his interest and retired from the Evanridge Potteries, 1244 Chicago Avenue, Evanston, Ill. Mr. Kearney was associated with William E. Rapp and A. Rapp in the business. The Evanridge Potteries will hereafter be conducted by a copartnership consisting of John A., William E., Edward B., and Sophia Rapp.

MOST EQUIPMENT REMOVED BEFORE FIRE

The old plant which had been the property of the Clinton (Ind.) Paving Brick Co., and had ceased operations about four years ago, was destroyed by fire. A month ago all the old machinery and equipment was sold to R. Baumstein, who resold it, and most of it had been removed.

STARTS TILE PLANT IN TERRE HAUTE

Dr. D. R. Ulmer, of Terre Haute, Ind., has added a new industry to that city in the manufacture of all kinds of tile building materials. The new plant, which has started operations, besides making residence building material, will make silo tile, sewer pipe and conduits for electric wire. Ernest Cox, formerly of Richmond, Ind., who has had many years' experience in the manufacture of tile, is the superintendent of the new plant. The output of the plant will range from 3,000 to 6,000 blocks a day and will be doubled in a short time.

EXPECT GOOD FARM BUSINESS THIS FALL

The National Clay Products & Tile Co., Muncie, Ind., reports great building activity on Delaware County farms this year. Building weather, it is expected, will continue for about three months, and there will be more farm buildings constructed this year than any year in the last ten. National hollow building tile is in great demand for garages, barns, poultry and milk houses, warehouses and factory buildings. Hundreds of silos in that part of the state have been built of National hollow tile.

RAILROAD ORDERED TO PAY REPARATION

Rates charged the Cannelton Sewer Pipe Co., of Cannelton, Ind., by the Southern Railway for transportation of bituminous coal during Federal control have been found unreasonable by the Interstate Commerce Commission. The complaint set forth that the movement in question was from mines in the Boonville district in Indiana to Huntingburg, Tell City, and Cannelton. The Southern was ordered to pay reparation to the complainants. The commission's decision also embraced similar complaints of the Huntingburg Pressed Brick Co., the U. S. Brick Co. and others.

COAL SHORTAGE BAD FOR FORT DODGE

Four of the eight clay products plants in Fort Dodge, Ia., have been compelled to suspend operations because they cannot afford to pay the high prices now being asked for coal. They are Johnson Brothers Clayworks, Hawkeye Brick & Tile Co., Fort Dodge Brick & Tile Co. and Lehigh Sewer Pipe & Tile Co. Approximately 250 men have been thrown out of work by

the shut-down. Unless the coal strike is settled very soon it will be necessary for the remaining clay plants in the city to close, with the exception of the Vincent Clay Products Co., who use oil for burning their kilns. The Plymouth Clay Products Co. will be able to run for a few weeks longer due to just receiving five carloads of coal, and the Bradshaw Brick & Tile Co. has enough fuel on hand to last about six weeks. The Kalo Brick & Tile Co. are facing a shut-down, but hope to avert it by paying the price that is being asked for coal, tho it is doubtful if they will receive it even then, due to the difficulty in shipping.

WICHITA PLANT MAY OPERATE SEPT. 1.

The new plant of the Noll Brick & Tile Co., Wichita, Kan., expects to be operating by September 1, making 25,000 brick daily. \$80,000 worth of machinery has been secured and the new building completed. This building is 30 by 75 feet and 41 feet high. The plant has a capacity for grinding and screening 700 tons of shale a day, and will produce 250,000 brick a day in addition to tile products, when fully completed, it is said. Both dry press and stiff mud brick will be manufactured.

SEWER PIPE CONTRACTS LARGE

Many sewer pipe contracts are being let in Louisville this year under the larger sewer bond fund, and this is resulting in a very fair demand for sewer pipe, according to the P. Bannon Pipe Co., local producers.

LOUISVILLE PLANTS TO EXHIBIT WARES

Several Louisville, Ky., brick plants are planning to exhibit at the Better Homes and Building Exposition which will be held in that city the week of October 23 under the auspices of the Louisville Real Estate Board.

THREE YEAR OLD CORPORATION TO START

At Jeffersonville, Ind., announcement was made on Aug. 1, that the Falls Cities Hydraulic Brick Co., incorporated three years ago, but which has never operated, plans to put its plant in shape, sell additional stock, and get ready to start operations.

NEW PLANT FOR SOUTH

The Shreveport (La.) Brick & Tile Co. has acquired a tract of land on Douglass Island, near Shreveport, totaling about 100 acres, and has plans in progress for the erection of a new plant for the manufacture of pressed brick. It is proposed to install machinery for a capacity of close to 1,000,000 brick per month, with storage facilities to provide for about 5,000,000 brick. Work will be placed under way at an early date. J. W. Peyton is president.

WILL REBUILD PLANT FIRE DESTROYED

The Porath Brothers Co., Detroit, Mich., has tentative plans under consideration for the rebuilding of the portion of its brick manufacturing plant, recently destroyed by fire with loss estimated at about \$50,000, including equipment and stock.

COAL SHORTAGE SERIOUS IN MICHIGAN

The American Vitrified Products Co. plant at Grand Ledge, Mich., has been forced to close down on account of lack of coal, and will not resume operations until coal is again moving from the mines.

The Grand Ledge Clay Products Co. has coal enough on hand to last until September 1. The Briggs Co., of the same city, has a two month's supply on hand, with several cars on the way.

PAYING BONUS FOR MINING COAL

The A. P. Green Fire Brick Co., of Mexico, Mo., paid a bonus of \$392 in three days to 58 Fulton miners for digging

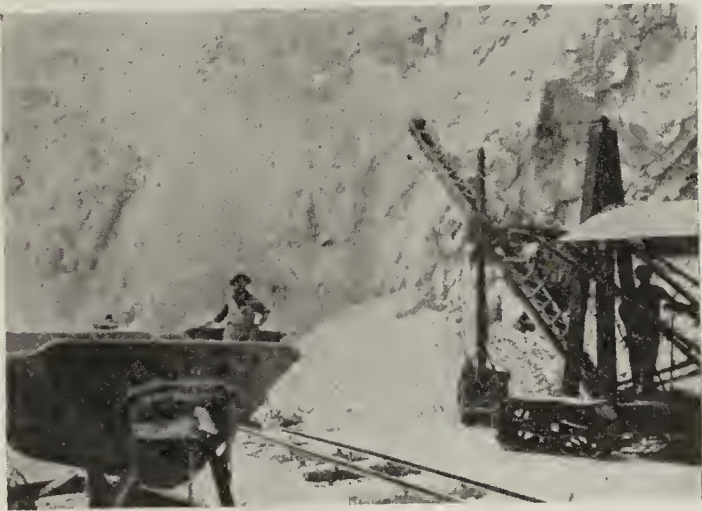
**ONE OF THE MANY—
BAY CITY EXCAVATORS
INSTALLED THIS YEAR**

There's A Reason—

- Clay plants with capacities of 25M to 100M brick per day
 - Can buy these machines at low price.
 - Can replace a dozen men in the pit.
 - Can dig sufficient clay to more than supply their needs per day.
 - Can cut operating and labor costs to a minimum.
- Write for a list of clay plant operators who are doing this very thing.

**The Bay City Dredge Works
Bay City, Mich.**

Caterpillar Type, Temple Clay Co., Temple, Pennsylvania.



**UNLOAD YOUR COAL
WITH
Fairfield Coal Handling
Machinery
SAVES TIME
SAVES MONEY
SAVES LABOR**

ONE MAN WITH A FAIRFIELD CAN UNLOAD
MORE COAL THAN 20 MEN BY HAND
THE FAIRFIELD ENGINEERING CO.
LANCASTER, OHIO

ATLANTA, GA. BALTIMORE, MD. BOSTON DETROIT
PITTSBURGH, PA. PHILADELPHIA MONTREAL MINNEAPOLIS NEW YORK CITY
SAN FRANCISCO ST. LOUIS, MO. TORONTO WINNIPEG, MAN.



MORSE Silent Chain Drives are 98.6% efficient for small or large drives. No worry about belt trouble, slippage of power and loss of production where Morse Chain Drives are installed.

Write us if you have a transmission problem. We give engineering service without any obligation.

Drop a Card to the Nearest Morse Engineer

MORSE CHAIN CO.

Largest Manufacturers of Silent Chains in the World

ITHACA, NEW YORK



CHARLOTTE, N. C. CHICAGO CLEVELAND KANSAS CITY, MO.

coal to be shipped to the Green plant. Payment was made at the rate of five cents for every bushel of coal mined that was shipped. The men receiving this bonus are employees of the Simmons Coal Co. and Foster Reed & Son. The A. P. Green Co. expects to receive five carloads of coal every day under this plan.

SUPPLIES A LONG FELT WANT

The Aztec (N. M.) Brick Co. has completed its second kiln of brick, and a third kiln is about half finished. This company is turning out a high grade brick and selling them at prices which enable the people of Aztec to build more houses, of which there is a scarcity there.

MAKING CONDUITS SUCCESSFUL

The International Clay Products Company, 31 Union Square, New York City, was organized by Jas. H. Morris of Philadelphia, and B. S. Barnard of New York, October 15, 1920, for the purpose of taking over the plant, equipment and three hundred acres of coal and clay located at Clermont, Pa., formerly operated by the Clermont Sewer Pipe Company. The latter company dissolved and the new organization is now operating this plant with complete success and satisfaction to the stockholders.

The plant which has 12 kilns is located on the Pennsylvania and Pittsburgh, Shawmut & Northern Railroads with good freight rates. Altho originally equipped for producing a high grade sewer pipe and fittings, having two large presses with ample floor space for drying, the company for the past 16 years has manufactured only electrical clay conduit.

The success of the International Clay Products Company was a hard pull thru the period of 1920 and 1921 due to the depressed condition of trade and a very slow demand for clay conduit. During the present year however the company has improved financially and is surely making up for lost time, which is quite encouraging to the officers and stockholders of this corporation. James H. Morris, president, is a banker in the Morris Building, Philadelphia, Pa. B. S. Barnard is vice-president and general sales manager, 31 Union Square, New York City. Mr. Barnard gained valuable experience at a plant which he formerly owned near Perth Amboy, N. J., which he later sold to the National Fireproofing Co.

The plant is managed by John A. Clay, and he has contributed largely to the success of the plant.

BARGE CAPTAIN BUYS HALF INTEREST

Captain George Terwilliger of Newburgh, N. Y., has bought the half interest in the Allen, Townsend and Mack brick plant at Arlington, N. Y., formerly owned by John E. Mack and Mrs. Edith Townsend. Captain Terwilliger has been in charge of a barge carrying brick to New York for many years, and is thoroly familiar with the distribution end of the business. Otis Allen is the senior member of the firm.

COAL SHORTAGE CLOSES PLANTS

Owing to coal shortage, the Akron Sewer Pipe Co. has closed two of its plants temporarily at Uhrichsville, Ohio. It is expected to resume as soon as fuel is available.

DOUBLE CAPITAL STOCK

The Diamond Brick & Tile Co., Cleveland, Ohio, has filed notice of increase in capital from \$50,000 to \$100,000, for proposed expansion.

PRESTON CLAY CO. ORGANIZED

The Preston Clay Co., Canton, Ohio, has been organized under state laws to manufacture brick and other burned clay

Salem Elevator Buckets



We are manufacturers of the original SALEM ELEVATOR BUCKET which is used for handling all classes of materials in many different industries.

This type of bucket is of one piece construction, with rounded contour throughout, smooth in form, durable in service and clean in handling and delivery of materials.

There are no seams in front nor on the ends, the laps being made on the back and bottom at the ends. On the back the laps are riveted or spot welded; on the bottom the end pieces are bent under and hammered tight.

The widest range of service is covered by a very full line of regular types and sizes and made in various gauges of steel, from the lightest practical for ordinary work to the heaviest necessary for the most severe duty.

Write for new price list.

THE WEBSTER MFG. COMPANY

4500-4560 CORTLAND ST., CHICAGO

Sales Offices in Principal Cities

products. The company is headed by H. S. Preston and H. S. Williams, both of Canton.

K-W BRICK CO. TO BUILD NEW PLANT

The K-W Brick Co., Warren, Ohio, is planning for the construction of a new plant on Clinton Street. It will consist of a number of buildings, with kilns, and is estimated to cost close to \$50,000. R. Swift is general manager in charge.

OPENS SALES OFFICE IN COLUMBUS

The Canton (Ohio) Brick & Fireproofing Co. has opened a sales office in Columbus, which is located at 39 West Long St. J. C. Forse, formerly connected with the Canton plant of the company, is manager of the Columbus office. The company has been doing a good business in Columbus since the establishment of the office. One of the features is a large display of face brick and fireproofing. The company operates plants at Canton and Robertsville. The plant at Midvale, near New Philadelphia, is nearing completion and will be ready for operation within a month, and possibly earlier. This plant will manufacture face brick and fireproofing and will have an equipment of 32 kilns. The Canton plant makes shale and clay face brick as well as fire clay, while the Robertsville plant makes shale brick only.

NEW COMPANY AT CONNEAUT

The Graham Clay Products Co., of Conneaut, Ohio, has been incorporated with a capital of 500 shares, no par value, to manufacture brick, hollow building tile and other clay products. Incorporators are Charles Follett, John W. Eckelberry, C. M. Horn, Fred J. Perkins and W. B. Stewart.

FIRE DAMAGED COLUMBUS, OHIO, PLANT

A fire on August 15 caused a loss of about \$2,500 to the Shale Brick Co., which operates a plant on Seventeenth Avenue, Columbus, Ohio. According to S. A. Booker, superintendent of the plant, work will not be delayed to any extent. The company manufactures common brick of the shale variety.

CLOSED BY COAL STRIKE TO REOPEN

The Ironclay Brick Co., of Columbus, is arranging to start its large face brick plant at Shawnee, which has been closed down for several months because of the miners strike. Steps are being taken to make the necessary repairs to get into full production at once.

STRIKE DID NOT AFFECT ONE PLANT

The plant of the Webster Brick Co., at South Webster, Ohio, which is in the coal fields of the state, was not closed down during the strike as its miners proceeded with their work and produced coal for the kilns. The headquarters of this company are at Chillicothe with A. L. Fullerton, president and S. K. Day, secretary.

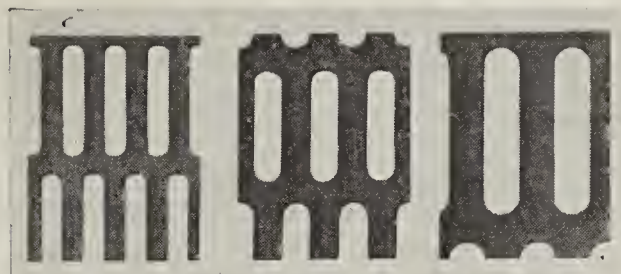
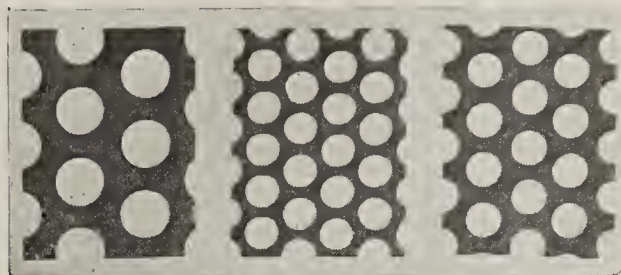
WIFE BECOMES PARTNER

Robert L. Watson, Columbus, Ohio, manufacturers' agent for brick, marble and other building supplies, celebrated his twenty-seventh year in business on August 5 by taking his wife into partnership. The firm is now known as R. L. Watson & Co., and has an office in the Columbia Building, in which Mr. Watson started in business.

OPERATING FULL DESPITE COAL STRIKE

The two plants of the Franklin Brick & Tile Co., of Columbus, located at Taylor's Station, are being operated with a full force. While coal supplies have been short the company has succeeded in operating. Face and common brick as well as hollow building tile are the products of the

Perforated Steel Screens



For Screening Clay, Shale, Sand, Gravel, Stone and Cement

All sizes and shakes of holes in metal of proper thicknesses to give the best screening results.

Sheets furnished flat or rolled to shape for revolving screens.

THE HARRINGTON & KING PERFORATING CO.

635 N. Union Ave., Chicago, Ill.

NEW YORK OFFICE: 114 Liberty St.

WOULD YOU LIKE TO MAKE BETTER BRICK ?

USE R. & H. PRECIPITATE CARBONATE OF BARIUM TO PREVENT SCUMMING AND THEREBY PRODUCING BRICK THAT ARE RICHER AND DEEPER IN COLOR, CLEANER AND CLEARER IN APPEARANCE.

IF YOU ARE TROUBLED WITH SCUMMING, WRITE US TODAY FOR CIRCULAR.

THE
**ROESSLER & HASSLACHER
CHEMICAL CO.,**

NEW YORK

CHICAGO
BOSTON
PHILADELPHIA

TRENTON
NEW ORLEANS
PITTSBURGH

KANSAS CITY
CLEVELAND
SAN FRANCISCO

BRISTOL'S PYROMETERS

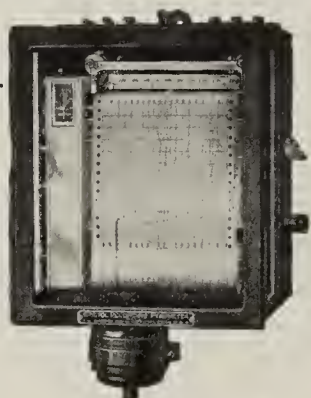
enable you to know at all times the temperatures of your kilns. They enable you to maintain even temperatures which are necessary to cut out waste and cracked ware. Competition is keen. Quality ware is in demand.

Eliminate guess work by installing BRISTOL'S Pyrometers. They accurately indicate and record temperatures up to 3,000 deg. Fahr.

Their rugged and simple construction and their scientific principles, make possible their use in all conditions.

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The Bristol Company
Waterbury Conn.



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AND
SIMPLE**

**BUILT
ACCURATE**

STEVENSON

DRY PANS

WET PANS

ROLL CRUSHERS

SEWER PIPE PRESSES

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BRICK BARROWS

TILE BARROWS

SEWER-PIPE BARROWS

GIGS

ETC.

**THE
STEVENSON O.
Wellsville Ohio**

*Western Sales & Engr.
Office*
801-802 Monadnock Bldg.
Chicago, Ill.

*Bulletins
on
Request*

plant. W. P. West, sales manager of the company, has returned from a vacation trip thru several western states.

COMPROMISE ON WAGES REOPENS PLANTS

Labor differences which existed for several weeks between sewer pipe plant owners and operators in the Toronto, O., district have been adjusted, and all shops in that territory are now working. The employees of the different plants went on strike seeking a higher wage, and the situation was compromised. The different plants were idle about two weeks.

DRAIN TILE PROSPECTS VERY GOOD

The drain tile season in Ohio is now opening auspiciously. Manufacturers report considerable business booked and indications point to a good season. The campaign of the Ohio Drain Tile Association to secure freight reductions failed but the industry shared in the general reduction of 10 per cent. on all freight rates. Farmers in many sections are preparing an elaborate drain tile program to be carried out during the winter months.

LOCATION OF OFFICE CHANGED

The Kennedy Refractories Co. has recently closed its office at Lancaster, Pa., and has opened a new office at Tiffin, Ohio. This concern operates plants at Bainbridge, Pa., and Bettsville, Ohio.

ALL PLANTS RECENTLY OVERHAULED

All of the plants of the Continental Clay Co., with headquarters in Columbus, which are located at East Greenville, Warmington and Salineville, Ohio, are operating. The expected news of the settlement of the coal strike is interesting as the company has only a short supply of coal. All of the plants have recently been overhauled and some new machinery installed.

FORM \$200,000 CLAY COMPANY

A \$200,000 corporation, to be known as the Medina Clay Products Co., was organized July 24 at Medina, Ohio. The board of directors consists of the following: President, B. S. Puritan, Wellsville, Ohio; vice-president, J. J. Puritan, East Liverpool, Ohio; secretary and treasurer, B. L. Cassady, Chippewa Lake, Ohio; Lee L. Cassady, Dresden, Ohio, and J. F. Townsend, Chippewa Lake.

This company will build a railroad tunnel kiln and in general rebuild on a larger scale the plant which was recently destroyed by fire at Chippewa Lake. B. L. Cassady will be manager and Herman A. Hall will assist him. The company is optimistic over the outlook and expects to produce ware in its tunnel kiln at a saving approximating 40 per cent.

WILL INCREASE HOLLOW TILE PRODUCTION

Enlargement of the production of tile needed in the Northern Ohio territory will be an accomplished fact within the next few weeks, when plans for extending the plant operations of the Independent Brick & Tile Co., Cleveland, Ohio, get under way.

The company has just completed the motorizing of its Turney Road plant, that all machinery and equipment will be operated by electricity. This part of the improvement is expected to be in operation before September 1.

Meanwhile construction of a new series of kilns is being started, a battery of eight being planned, these to be built in units of two each. When completed this will make for a doubling of the capacity of the Independent. It is planned to make tile exclusively in the new kilns at the beginning, principally 5x4x12 and 5x8x12.

Here as elsewhere in the country demand for tile has been

Analyses of the Coal and Clay Found Along the Line of the P. L. & W. R. R.

Coal—No. 6	Clay—No. 3
Water .....2.200	Silica .....59.84
Volatile Matter ....35.540	Alumina .....25.96
Fixed Carbon ....54.705	Iron Oxide..... 1.68
Sulphur 1.725	Titanium Oxide... 1.60
Ash 5.830	Magnesium Oxide 1.08
	Sulphuric Anhydride .....Trace
	Alkali Oxides..... 1.22
	Fusion Point..3020° F.

This territory is only 40 miles from Pittsburgh and the P. L. & W. R. R. connects with both the Pennsylvania and Erie Systems.

Write today for full particulars.

The Pittsburgh, Lisbon & Western R. R. Co.
Lisbon, Ohio

Are You Building a New Plant?

You want it to pay dividends. The size of these dividends depends on the quality of engineering you engage.

If highly technical, combined with common sense methods, everyday practical ability, along with broad commercial ideas, your profits are assured.

Our service should interest you.

WALLER CROW, INC.
Engineers
COUNSELLORS IN INDUSTRIAL
OPERATION & FINANCE
327 S LA SALLE STREET
CHICAGO

Electric Motors and Generators for all requirements of the Brick and Clay Industry

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BURKE ELECTRIC CO.
MAIN OFFICE AND WORKS
ERIE PENNSYLVANIA

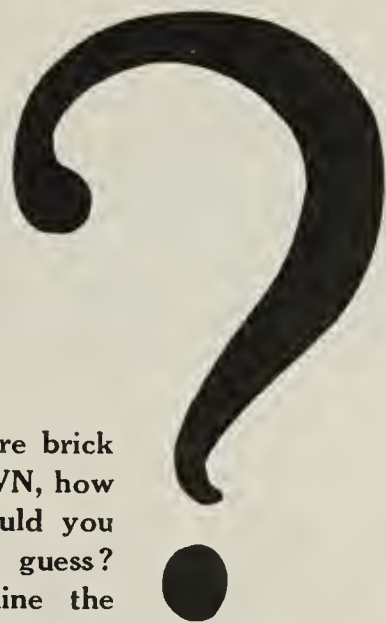
Service-Sales Offices

NEW YORK CLEVELAND PHILADELPHIA
PITTSBURGH DETROIT BUFFALO

Sales Agencies

CINCINNATI: UNDERWOOD ELECTRIC CO.
KANSAS CITY: W. T. OSBORN

If



you must order fire brick for a KILN CROWN, how many wedges would you purchase? Why guess? You can determine the amount easily and accurately by turning to page 178 of the 1922 Clay Products Cyclopedia.

Industrial
Publications
Inc.
407 S. Dearborn
St.,
Chicago, Ill.

Enter my order for one copy of the CLAY PRODUCTS CYCLOPEDIA, the price to be \$3.00. I agree to send check upon receipt of invoice or return book in ten days after receipt.

Name

Address

City..... State.....

STOP! THINK!

\$4.25 per Doz.
\$48 per Gross



A Free Pair of Hand Pads will be given to readers of this publication, who have not been using Des Moines Hand Pads, as a trial test of their merit, provided said reader clips one of the pictures of the Pads, and encloses it with his letter-head.

Use Good Hand Pads

to protect your ware as well as your men's hands. Quality ware is in demand. Competition is keen. You cannot market ware with broken corners.

Des Moines mittens and hand pads will enable your men to handle ware efficiently and carefully, eliminating the blister bugaboo.

Ask for a dozen pairs on trial today. It will not obligate you.

Des Moines Glove & Manufacturing Co.

508 Fourth St., Des Moines, Ia.



\$7.80 per Doz.
\$90 per Gross



The Garner Brick Works located at Haverstraw, New York, with this "MINSTER" Six Ton are hauling their clay about a mile and are turning out 135,000 brick per 8 hour day. Consider this efficiency and adaptability and the economical advantages of the "MINSTER" over your present method and write for Catalog and information.

The Industrial Equipment Company

510-516 Ohio Street Minster, Ohio

Eastern and Export Department
The Herbert Crapster Co., Inc., One Madison Ave.,
New York City.

in excess of production, the Independent having been oversold for months, according to A. J. Earle, sales manager.

WORKING DAY AND NIGHT TO FILL ORDER

The Vitrified Brick & Tile Co. at Collinsville, Okla., is filling an order for 2,000,000 paving brick to be used on county roads. I. C. Miller, representing Oklahoma County, who was in Collinsville to test the brick, stated that this plant is one of the most complete in the country. About five cars of brick a day are turned out. The plant is working day and night shifts at present, and employs 75 men.

BREAKING SHIPPING RECORDS

The Bessemer, Pa. plant of the Metropolitan Paving Brick Co. is going at full blast, and shipping immense quantities of paving block. A record for one day's shipment was 501,000 block, and the average day in and day out shipment from this plant is 300,000.

FULL PRODUCTION CUT BY LABOR SHORTAGE

The Harbison-Walker Refractories Co., Pittsburgh, Pa., has declared a quarterly dividend of 1½ per cent. on both its common and preferred stocks, payable on September 1. The company is operating at the highest possible capacity at its plant at Mount Union, Pa., and has been severely handicapped owing to the difficulty in securing men; an effort has been made throughout the entire central Pennsylvania district to recruit the desired working force, but with little success. The company has orders on hand to allow maximum production for almost an indefinite period.

VAN WYCK WILL INCORPORATE

In order to carry on some development work and increase the capacity of its brick plant near Chester, S. C., the Van Wyck Brick Co. is planning the organization of an incorporated stock company. When the incorporation has been affected the new concern will take over the operation of the plant with the same management, and various additions will be made to increase the capacity.

TO DEVELOP PROPERTIES IN TENNESSEE

J. E. Reece, secretary and treasurer of the Dixie Coal, Lime & Clay Products Co., of Graysville, Tenn., advises that the company is planning to start at once extensive developments of its properties in Tennessee.

CLAIM DISCRIMINATION AGAINST BRICK

The Thurber Brick Co. and Mineral Wells Paving Brick Co., of Texas, have made application before the Texas Railroad Commission, charging discrimination in favor of rock asphalt and against paving brick, thru the application of lower rates on rock asphalt. A meeting will be held on September 12 at which railroad representatives and interested parties will consider the matter.

HEADQUARTERS TO BE AT HOUSTON

Headquarters of the Houston Brick and Supply Company are to be established in Houston, Texas, during early October, according to reports from that city. The firm, however, opened a sales office at Chartres and Commerce Streets in that city on August 5.

DALLAS NOW A BRICK TOWN

The Acme Brick Company, with plants at Millsap and Denton, Texas, and Perla, Ark., thru L. Fife, its Dallas sales manager, reports common brick early in August as \$10.90 a thousand, f. o. b. Dallas. Speaking of the company's business, Mr. Fife said it was a great deal better. He declared that while prices were lower, that fact had



ACCURACY

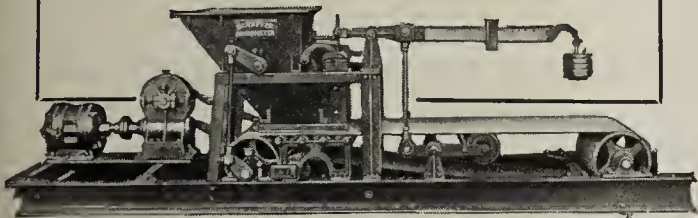
Predetermination of quality in the mixing and tempering of your clay and 99.75 per cent. accuracy in tempering and weighing soon amounts to real savings for the manufacturer.

The Poidometer eliminates waste and extra labor, eliminates cracked ware in the dryer, and will weigh your clay at any rate of speed (1½ pounds to 21,000 pounds per minute).

*Let our engineering staff
cooperate with you*

SCHAFFER ENGINEERING and EQUIPMENT COMPANY

2828 Smallman Street Pittsburgh, Pa.



HENDRICK SCREENS FOR ALL PURPOSES



ELEVATOR BUCKETS
CONVEYOR TROUGH and FLIGHTS
STACKS, TANKS,
GENERAL SHEET and
LIGHT STRUCTURAL WORK
LIGHT AND HEAVY STEEL
PLATE CONSTRUCTION

*Ask for your copy of the
Perforated Metal Handbook*

HENDRICK MFG. COMPANY CARBONDALE, PA.

NEW YORK OFFICE: 30 Church St.
PITTSBURGH OFFICE: 544 Union Arcade Bldg.
HAZLETON, PA., OFFICE: 705 Markle Bank Bldg.

**"Have you seen this
little grief Killer?"**



Brick and clay plants eat up
pay rolls handling materials.
Clark Tractors with trailers
handle bulky products quickly
and cheaply.

CLARK TRACTOR CO.

1124 Days Ave. Buchanan, Mich

DIESEL ENGINES FOR CLAY PLANTS

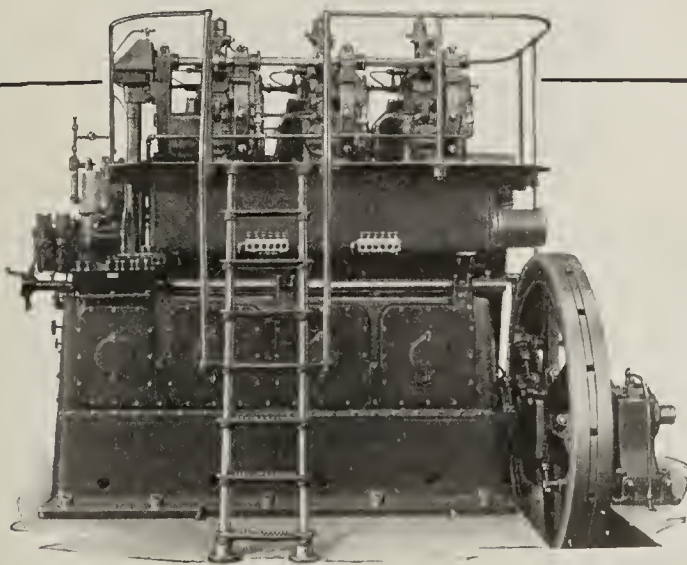
Economical Power—Efficient Operation—Convenient—Conservative—Complete—Easy to care for—Always ready and reliable.

This engine operates on cheap fuel oil. Fuel storage space decreased. A small amount of fuel makes a big amount of power.

*Send for new catalog, either vertical
or horizontal types furnished.*

THE HADFIELD-PENFIELD STEEL COMPANY Bucyrus Ohio

Formerly the American Clay Machy. Co.



Russell TUNNEL KILN

Cut Your Costs

Continuous production reduces costs in the manufacture of clayware just as it does in other industries. Learn how you can cut labor and fuel costs and increase production by the continuous operation of a Russell Tunnel Kiln (Zwermann Patent.)

Write for illustrated book
"MODERN FIRING"

RUSSELL ENGINEERING CO.
Railway Exchange Bldg., St. Louis, Mo.

E-353



HY-GRADE MANGANESE CO.
WOODSTOCK, VA.

Miner
and
Grinders

**Especially Prepared
for Brick Making**

little to do with the greater demand, which he says, is brought about by an easier money market. There is a tendency in the southwest, the sales manager noted, to put up more attractive, semi-fireproof houses. "Without question, Dallas has become a 'brick town,'" Mr. Fife said. "While the brick men invariably get the larger structures, more and more the builder of the smaller structure is coming to realize the advantage of better construction."

EL PASO'S BRICK PLANTS

El Paso, Tex., is a city of brick. In that hot and dry climate, where all other building material is scarce, brick is the only logical and sensible building material. So the brick industry is one of the most natural of developments for El Paso. It is not then really a matter of surprise that in 1921 this city produced 20,500,000 brick and that El Paso has produced all told in the past ten years some 250,000,000 brick.

There are three plants in El Paso, the El Paso Brick Co.; The International Brick Co., and the Sheehan-North Co. These companies represent an invested capital of about \$1,000,000, employ from 300 to 400 men and pay out in wages yearly some \$250,000. The brick men estimate that 98 per cent. of all buildings and 99 per cent. of all residences in El Paso are of brick, so with the growth of population in the southwest a great field lies before them. The plants also turned out 4,100 tons of tile in 1921, and tile is coming more and more into use.

ENTERTAINS EMPLOYEES AND CUSTOMERS

The Salt Lake Pressed Brick Co. of Salt Lake City, Utah, entertained its employees and patrons at a day's outing at Saratoga Springs a short time ago. Swimming, dancing and a bountiful picnic dinner furnished amusement for the guests. Olaf Hansen was chairman of the committee on arrangements.

COMPANY FORMED IN VIRGINIA

The Roanoke (Va.) Brick Co. has been formed with a capital of \$100,000, to manufacture brick. A local plant will be operated. D. J. Phipps is president, and J. C. Halev, secretary both of Roanoke.

REPARATION ON COAL RATES ORDERED

Rates on coal collected from the Far West Clay Co. of Clay City, Wash., by the Chicago, Milwaukee & St. Paul Ry. during federal control of the railroads were found unreasonable by the Interstate Commerce Commission recently. In its opinion the Commission stated that the rates are not shown to have been unreasonable prior to June 25, 1918, but on and after that date were unreasonable to the extent that they exceeded \$1.70 per net ton. The carrier is ordered to pay reparation, it having charged \$1.70, \$1.75 and \$1.90. The coal was shipped from Foran to Clay City, Wash.

PUSHING PLANT TO COMPLETION

The Vader (Wash.) Sewer Pipe Co. is pushing work on its new plant. The main drying building will be 106 feet in length, and adjoining will be large crushing and power plants. Equipment of the latest design for saving labor, and the newest ideas in drying and heating have been elaborated for use in the plant. The officers of the company are: President, L. A. Spear of the Brick, Lime & Sewer Pipe Co. of Spokane; vice-president, A. L. Hodgdon, insurance and logging broker of Hoquiam. Others interested are A. V. Chamberlain, manager of the American Trust Co. of Coeur d'Alene, Ida., and D. R. H. Campbell, president of the Little Falls State Bank of Vader.

MILWAUKEE GETS NEW COMPANY

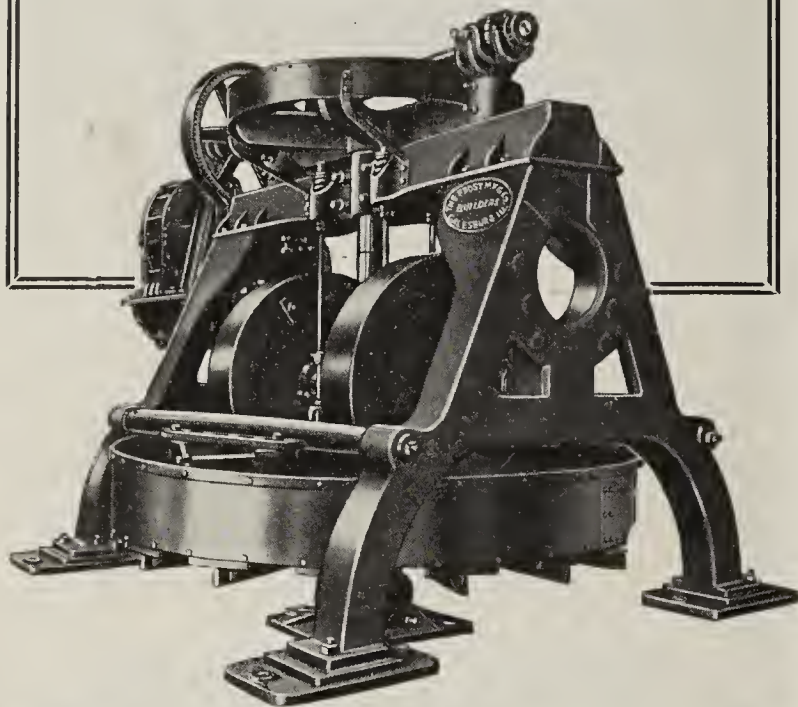
Articles of incorporation have been filed by the Milwaukee (Wis.) West Brick Co. Capital stock is 500 shares of pre-

**OIL BURNING & STORAGE SYSTEMS
FOR
POWER & INDUSTRIAL PLANTS.
C. A. HOPPIN & COMPANY INC.
ENGINEERS - CONSTRUCTORS
PEORIA - ILLINOIS**

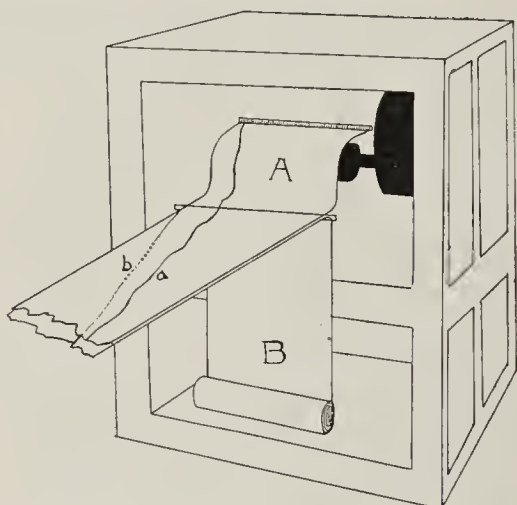
BETTER QUALITY WARE

That is the result when Frost
Dry Pans are put on the job.

THE FROST MFG. CO.
GALESBURG, ILLINOIS



QUALITY ECONOMY SERVICE



Standardize Your Burns

Determine what is the proper speed at which kilns should be burned. Plot this as a time temperature on a roll of paper mounted like "B" in the illustration above. Mount this so that it can be moved backward and forward.

Then the record of every kiln as shown on "A" can be placed over the standard time temperature curve and a glance will tell whether or not, the kiln is being burned too slow or too fast.

The result will be that the fireman without any knowledge of the mechanism of pyrometers will be able to burn a kiln with a minimum of fuel and a maximum of quality ware.

Ask for details

Wilson-Maeulen Co.
738 E. 143rd St. New York

ferred with a par value of \$100 and 1,000 shares without par. Incorporators are: Emil A. Oestreicher, William Walderon and Charles Koth, all of Milwaukee.



THE BUILDING SITUATION

(Continued from Page 245)

The coal and rail strikes have had the effect of reducing the supply to a noticeable extent, and there is a growing scarcity of important commodities. Even brick, usually reaching the city by water route, show depleted stocks, and efforts are now being made to secure production from southern plants.

Brick Producers Have Trouble

Up the Hudson River, from 50 to 70 miles from New York, at Haverstraw and vicinity, brick manufacturers are encountering a number of difficulties to retard operations. Fuel scarcity is growing more marked from day to day, and while fortunate yards are still burning coal, others are using coke, coal briquettes and cord wood. A number of yards have been forced to delay the burning of brick owing to the situation. The scarcity of good common labor is still another handicap at some plants, and one of no mean extent. There is keen bidding for desirable men, and the influence of higher wages is being used to get them.

Operations Increase in New Jersey

Home construction is hitting a high point of activity in all parts of New Jersey, with the Southern districts coming more and more into prominence as the weeks go by. The development of new work at Glassboro, Pitman and vicinity indicates many uncompleted structures by winter, despite the fact that every effort is being made to have houses now under way ready for fall occupancy. Millions of dollars are being expended in this territory.

Plans for new dwellings to an amount of \$1,859,000, were filed at Newark, N. J., during the month of July, providing accommodations for 170 families. The first six months of the year show a gross of \$15,500,000 for buildings of all kinds in the city, as compared with \$10,885,000 for the corresponding period of a year ago.

Bricklayers at Wilmington Ask Raise

Bricklayers at Wilmington, Del., have presented a formal demand for an increase in wages. The men are receiving \$1 an hour, and ask \$1.12½ commencing September 1, and \$1.25 an hour on and after September 15. Builders and contractors say that the demand cannot be met.

During the month of July, the local building department issued permits for new construction to a total valuation of \$129,448, a gain of \$52,000 over the corresponding month of last year.

Heavy Brick Dwelling Work at Philadelphia

The Philadelphia Housing Association, Philadelphia, Pa., is inspiring interest in the construction of modest priced dwellings thruout the city. Investigations just made show that less than 1 per cent. of the homes now in progress can be secured for \$3,600, or less, while \$5,000 and \$10,000 dwellings, on the other hand, are readily available. With necessity for better equalization plans are being developed involving millions of dollars for lower-priced homes.

The construction average at Philadelphia holds quite uniform from week to week with total volume of work reaching well over \$3,000,000. Up to the present time, the building department has issued permits for more than 6,100 houses in different parts of the city, with gross estimated valuation placed at \$32,000,000. There is a more definite movement in the line of industrial buildings in the city, including iron and steel works, textile mills, and metal-working plants.

Building permits in excess of one million dollars were issued

Smokeless Oil Burners *Make it Easy*



To perfectly distribute the heat, to hold the same temperature in the center of the arches as in the heads and to finish the kiln with an even settle. Well distributed heat improves the color and the percentage of saleable ware. Smokeless Oil Burners make these things easy to accomplish.

Smokeless Oil Burner Co.
BUCYRUS, OHIO
Tanks, Pumps, Meters, Strainers, etc.

It's Not So Much What You Pay for Machinery, But What You Save by Paying

The cost of machinery never denotes economy. It's the years of satisfactory service you get out of it that proves its worth. Wherever The Eagle Shale Planer is used there is ECONOMY AND EFFICIENCY. It's the most up-to-date shale gathering machine on the market today.

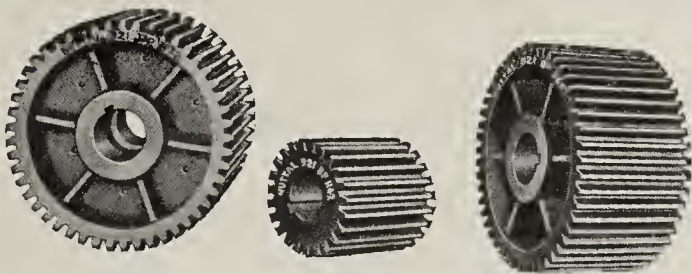
*Write us today and let us explain
what the Eagle will do for you.
No obligation*

EAGLE IRON WORKS
Des Moines Iowa



Which Is Cheaper?

Any old pinion at \$10.00
—or—
A BP Pinion at \$13.50?



It will take four ordinary untreated pinions to equal the life of one BP. We guarantee that under a good old fashioned money back guarantee. The BP Pinion will save you three pinion changes—that counts heavily too, so the answer seems to be that you would save \$26.50 purchase price or better than 66 per cent plus labor cost of three changes—and often the cost of shutting down and stopping production.

Do we get that next order?

R.D.NUTTALL COMPANY
PITTSBURGH  PENNSYLVANIA

Philadelphia Office: 430 Land Title Bldg.
Chicago Office: 2133 Conway Bldg.

Nuttall



The Brickmaker's Friend

It would be a difficult matter to find a more fitting name to apply to Standard Ball-bearing Roller Brick Conveyors.

These sectional, untiring, ever ready conveyors have been tried and never found wanting in times of need.

Unlike the usual portable power driven mechanical contrivances, they never endeavor to shirk a day's or even a portion of a day's work by pleading, "out of order."

Operated by a perpetual power, GRAVITY, the sensitive ball-bearing rollers respond instantly and freely to the pressure of the load, and riding friction free, brick and all clay products are transported from car to pile or vice versa.

Our representative in your territory will gladly call and show you how effectively a few sections of these time- and labor-saving conveyors will operate in your yard.

Write Today

STANDARD
CONVEYOR COMPANY

NORTH ST. PAUL, MINN.

New York
227 Fulton St.
Milwaukee
601 Security Bldg.

Chicago
549 W. Washington St.
Cleveland, O.
1108 Hippodrome Bldg.

Representatives in all principal cities

on one day, August 2, in Philadelphia. The largest operation is 158 two-story houses in the Olney section, by Burton C. Simon. Another for 34 two-story brick houses was in West Philadelphia.

Total July building permits in Philadelphia exceeded ten million dollars. This is nearly three times the total for the corresponding month last year. It makes 1921 to date over \$43,000,000 ahead of all of 1921. July was the best month in the history of the Bureau of Building Inspection for garage construction, permits having been issued for more than 200 garages. Dwelling construction permits in July were for 700 houses, fully 500 less than the June total, but 500 over July, 1921.

Construction Growing at Baltimore

Construction operations continue to grow at Baltimore, Md., both in the line of dwellings and factories. The monthly average is running to over \$3,000,000, with August activities comparing favorably with June and July work. A recent compilation shows that Baltimore has a higher percentage of new housing accommodations in the form of single family dwellings than any other city of the country, standing at 90 per cent. Philadelphia follows with 88 per cent., and Pittsburgh next with 68 per cent.

Chicago Far Ahead of 1921

This is the biggest building year in the history of Chicago.

Permits for the construction of \$127,712,000 worth of buildings—residences, apartment buildings, office buildings, factories, and other structures—have been issued during the first seven months of the year. That is more than has ever been spent for buildings in any twelve months heretofore. The 1922 total may reach \$175,000,000.

The high mark heretofore was last year's record which was \$125,004,510. The previous high mark was that of 1916, when permits for \$112,835,150 worth of buildings were issued. The total for 1920 was only \$79,102,650 and for the first seven months last year, \$66,554,000.

The following figures show interesting comparisons:

	1921 (12 months)	1921 (7 months)	1922 (7 months)
Residences	4,622	2,326	3,904
Apartments	1,453	521	2,238
Industries	1,294	622	1,005
Others	384	148	422
Total Permits.....	7,753	3,617	7,569
Frontage	230,626	104,543	233,949

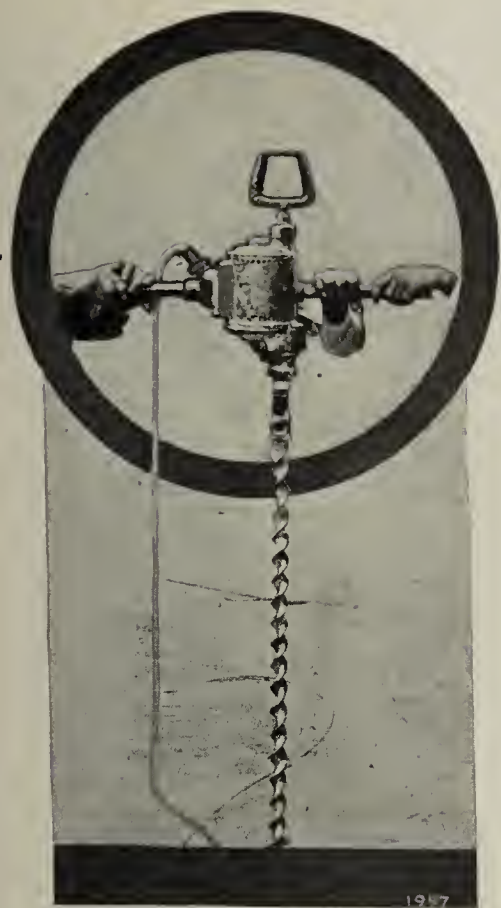
St. Louis Permits Increasing

St. Louis building permits for July totaled 1,247 and embraced improvements estimated at \$1,985,947. They included 744 new buildings, costing \$1,691,915, and 503 alterations for \$294,032. In July, 1921, permits numbered 1,001 for \$1,118,215. The permits issued last month called for 151 brick dwellings, flats and apartments, costing \$1,081,800, and but 32 frame structures for \$48,600. Also 14 stores for \$79,875 and 71 fourth class buildings, including sheds, \$98,615.

With a total of 2,917,000 burned brick and 2,801,000 unburned on hand and orders for 3,429,000 on their books the brickmakers of Missouri, Kansas, Minnesota, Iowa, North and South Dakotas, in which district St. Louis is located are facing a serious situation produced by the coal and rail strikes.

Brick Houses Popular in Dallas

A tabulation compiled in Dallas, Texas, shows that of twenty-eight new residences now under construction in Highland Park, a suburban district adjacent to the city (permits totalling \$348,700), one residence will cost \$60,000, another \$50,000 and a third one \$25,000. All of these are entirely of brick construction. There are also 17 of brick veneer construction valued at \$180,700.



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R-20

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BROOKVILLE NOW FURNISHING ATTACHMENTS FOR HEAVIER FORDSON TRACTOR

The Brookville Truck & Tractor Co., Brookville, Pa., have been building locomotive attachments for the past four years for the standard Ford ton truck. This light machine has proven highly successful for industrial rail haulage for the lighter work, and has proven the most efficient and economical power for rail haulage up to certain loads and grades.

A large number of their prospective customers with haulage propositions in excess of the Ford ton truck machine's capacity, have been urging them for the past three years to design and construct attachments for the heavier Fordson tractor. Attachments of this type were designed as far back as 1919, but at that time were unable to make some arrangement to give the Fordson a suitable working speed in reverse. From experience gained thru construction of attachments for the Ford ton truck, they knew the machine would not be a success with only a two-mile reverse working speed. The Brookville company have always refused to build up the Fordson attachments until the present year, now having a proper working speed of six miles per hour in reverse the same as forward.

A trial machine constructed early in the year has been thoroly tested out and is perfectly satisfactory. Weight is 6,000 lbs. and by using a 20-inch drive wheel, have cut down wheel base 36½ inches, suitable for the sharpest curves that may be encountered around all brick and clay plants. The machine is as efficient and powerful as the average three to four ton gasoline locomotive and extremely low in cost; plus all the added advantages of local Fordson Service at the disposal of the purchaser.

The attachments have been arranged without mutilation to Fordson and will be marketed mainly thru the Fordson dealer: the Brookville Truck & Tractor Co. furnishing the attachments and the Fordson dealer the Fordson, altho when desired, they intend to ship complete with Fordson, fully assembled and ready for service. They are well equipped to take care of all orders and in a position to make reasonably prompt shipments.

There is no intention of discontinuing the construction of the lighter attachments for the Ford ton truck, as for lighter work, it is more satisfactory and economical than the heavier machine. However, without question this powerful Fordson machine will enable many plants that have been using horses and mules to swing to power haulage, due to economy both as to first cost and operating cost. It is a fact that many plants already have Fordson tractors, and by merely purchasing the Brookville attachments they will be fitted with equipment for both road and railway use.



UNLOAD COAL BY GRAVITY

"Brick and Clay Record" is in receipt of an open letter from The Galion Iron Works & Mfg. Co., Galion, Ohio, telling about the benefits to be derived from the use of their coal unloader. You might ask: "What's the value of a Coal Unloader, when we are not even sure of securing coal?" The answer is, that the strike will not last forever, and the unloader once installed will be a constant source of saving. The letter, which was accompanied by an illustrated folder, reads as follows:

"The Galion Industrial Coal Unloader which enables the handling of coal by gravity, affords the cheapest method, the most convenient method and the most satisfactory method that has ever been devised for handling coal.

"It is the method of coal handling that will save you money, save you time and soon save its own cost and will always save. To save more in handling your coal is to increase your profits.

"Compare the Galion Industrial Coal Unloader method of handling coal with your present method.

"Note particularly the Galion Trolley Carrying System which enables coal to be unloaded from the car, conveyed any distance desired, let down and released at the bottom of the bin, silo or on the ground with the minimum of breakage.

"The heavy construction of the three unit hoist will impress you with the power, control and simple method of operating. We especially call your attention to the feature, which has no comparison on the market.

"Another important feature is the skip hoist bucket and the trolley carrying bucket enabling double capacity as compared with any other trolley carrying system on the market."

BRICK and CLAY RECORD

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Copyright 1922
By Industrial Publications, Inc.

Entered as Second Class Matter January 2, 1911, at
the Post Office, at Chicago, Ill., Under
the Act of March 3, 1879.

Terms of Subscription
One Year—(26 Numbers)
United States.....\$3.00 Foreign\$4.00
Single Copies.....25c

Member of Associated Business Papers, Inc.
Member Audit Bureau of Circulations

Published Every Other
Tuesday by

Industrial Publications, Inc.

Telephone: Harrison 9462

407 S. Dearborn St. Chicago

Branch Offices

New York Cleveland Kansas City

Address all communications to home office

Chicago, September 5, 1922

Vol. 61

No. 5

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Standards of Practice for Business Publications

The publisher of a business paper should dedicate his best efforts to the cause of Business and Social Service, and to this end should pledge himself: 1. To consider, first, the interests of the subscriber. 2. To subscribe to and work for truth and honesty in all departments. 3. To eliminate, in so far as possible, his personal opinions from his news columns, but to be a leader of thought in his editorial columns, and to make his criticisms constructive. 4. To refuse to publish "puffs," free reading notices or paid "write-ups;" to keep his reading columns independent of advertising considerations, and to measure all news by this standard: "Is it real news?" 5. To

decline any advertisement which has a tendency to mislead or which does not conform to business integrity. 6. To solicit subscriptions and advertising solely upon the merits of the publication. 7. To supply advertisers with full information regarding character and extent of circulation, including detailed circulation statements subject to proper and authentic verification. 8. To co-operate with all organizations and individuals engaged in creative advertising work. 9. To avoid unfair competition. 10. To determine what is the highest and largest function of the field which he serves, and then to strive in every legitimate way to promote that function.

Good Will and Ethics

The current life of American business is revealed in the journals that report its activities. Its confidence in them is reflected in almost every page. Business journals live and thrive not only because they render an economic service, but because they enjoy the good will of their constituency. Every type of business is dependent upon good will to a degree, but to the publisher it is the very bedrock foundation of his business.

Consideration of business ethics arises in all industrial publishing. In earlier days, favoritism in the sale of advertising space was a frequent practice. Sometimes, a big advertiser would practically subsidize a paper, and by the conditions he imposed shut out all competitor advertising from its pages. Another abuse was the sale of space to irresponsible and illegitimate advertisers. Today an industrial paper would blush to have it suspected that any advertiser could control its space against his competitors; and it is a growing practice to scrutinize the source of all copy offered for the advertising columns and to admit only those who can prove their right to address the paper's readers.

At one time the idea was prevalent

that editorial service must be given to advertisers in order to secure their patronage. In other words, the motto was "business first, editorial service second." A long time ago, however, the leading industrial papers began to wake up to the fact that the editorial and business departments must be divorced. They saw the necessity for keeping advertising within the paid advertising columns, and ruling out all complimentary publicity. Publishers now realize that giving real service to the subscriber provides the quickest means for making the paper a financial success.

The leading trade journals of the country have profited by these past experiences, and have adopted a code of ethics or standards of practice, the chief principle of which is to consider first the interests of the reader. This code was adopted for one purpose only, that is, to enable each journal to determine its highest and largest function in serving its particular field so that it can fully develop that function.

The constructive and beneficial influence of the industrial press has grown immeasurably since the adoption of this code.

The EDITOR'S CORNER

Cost Accounting Basis of Success

QUITE FREQUENTLY we can learn many things about improved methods of conducting our own businesses by studying other lines of industry.

This was brought home to us forcibly a short time ago in connection with the insurance business. We are all familiar with the many branches of this business, covering losses by fire, death, theft, storms, disease, accident and a hundred causes, and we also know that the total business amounts to almost unbelievable figures.

The insurance business is economically sound or it could never have grown to its present proportions. We wonder, however, if most men realize the fact that without an accurate and thoro system of cost accounting the insurance business would never have passed the experimental stage. All rates are based on actual experience of the same class of risks in past years. To these rates are added operating costs, overhead charges and a small profit. The established rates are absolutely adhered to by the companies, and the continued growth of this business is the best possible evidence of the soundness of basing rates (which is the same as the selling price) on costs.

Did we ever find a successful insurance company that competed for business by cutting its established rates? They all know that if they do that, they would soon be in the hands of a receiver. It seems against the ethics or principles of the business. They know their cost and will not sell below that.

If an intangible service such as insurance can be sold at all times above cost, and if the costs can be determined accurately, why do we find so many manufacturers of clay products at sea regarding their costs and often selling their product at a loss? Surely, clay products have as many talking points as insurance.

The advice to clay products manufacturers is evident. The industry may never compete with the insurance business for volume, but there is ample room for improvement. First, know your entire costs—do not estimate them—know them. Then add a fair profit and sell at that figure. When your costs change, change your selling price accordingly.

The result will be a larger share of profits than you have been enjoying if, in the past, your sales prices have been based, not on costs, but on your competitors' prices.

✻ ✻ ✻

Secrecy a Bugaboo of Business

SECRECY is the foundation of many fraternities at high school and college, and of various fraternal orders in later life. These organizations thrive on the mystery connected with secrecy. In business, however, secrecy leads to isolation. The organization which tries to hide its trade secrets is often so anxious to prevent information getting out that it also prevents information getting in. It often fails to profit by improvements made by its competitors, and the secrecy it has maintained thereby proves a boomerang.

"Experience in dealing with producers of different commodities has shown that secrecy is largely a method by which producers have been fooling themselves," says George Otis Smith, the director of the United States Geological Survey, who has had long contact with production statistics. "Those who really wish to know the scope of competitors' activities have plenty of ways to find out. Secretive operators, who eventually decided to change their methods, have been surprised very much on disclosing their secrets to find that these secrets already were well known to their competitors."

This lack of cooperation, this erroneous belief that secrecy is necessary to success, hinders and delays the progress and growth of any industry. At the same time, no individual manufacturer can progress far unless the entire industry with which he is connected progresses in proportion. Just the same as in a tug of war or a football game, we must all work toward the same goal. Teamwork is necessary between the various members of an industry as much or more than in athletics, if the utmost success is to be achieved.

The clay products industry is especially in need of cooperation and teamwork among its members, because the public is our customer, and that customer needs education and enlightenment regarding our products. Help one another to combat the claims of rival commodities, and the business of each and every

one will prosper and increase. We help ourselves by helping our competitor.

✻ ✻ ✻

Are Prices Going Up?

WHAT WILL BE the effect of the increase in the wages of the common laborers of the United States Steel Corporation, which went into effect September 1? There have been many answers, by the best economists of the country. The old rate was 30 cents and the new rate is 36 cents per hour.

It is evident that this step was not taken by such a large corporation without thoro study of the situation from every angle. It no doubt considered labor supply, restriction of immigration, cost of living, the demand for its products, the prices it receives and other questions. All of these points should be considered by any company before changing wage rates, but few employers have the opportunity or sources of information necessary to make as complete a study of this question as the U. S. Steel Corporation. We must, therefore, accept this change in wages as an economic necessity. What concerns us vitally is, what effect will it have on the clay products industry?

First, it will eventually raise the prices on all common labor, and of course our industry will be affected like all others. There is a growing shortage of common labor, due to the restriction of immigration and the increased demand by many lines of business returning to normalcy. Second, it would tend to raise the prices on steel, and in fact on all metals—steel prices have already been raised.

The clay products industry requires a large amount of labor, and its repairs and replacements contain a very large percentage of metal. Any improvement, therefore, that will curtail or reduce the use of labor should be thoroly investigated at this time and installed. Likewise, the purchase of any equipment that may increase in price should be provided for now. Some economists expect another period of inflation, not as extensive as the past one, but inflation and increased prices just the same. At least there seems small indication of any further reduction in prices. It is well to play safe and provide for the future at present prices.

Trade Schools Relieve Shortage

Twin Cities of Minnesota Have Tackled Problem in Correct Way—Reduce Time of Apprenticeship from Three Years to Six Months—Two Other Cities Are Establishing Similar Schools

THE ARTICLE which appeared in the August 8 issue of Brick and Clay Record entitled, "Who Will Lay Your Brick And Tile?" has brought forth several reports of the locations of trade schools for bricklayers. John H. Donahue, Jr., vice-president of the Corning-Donahue Brick Co., Inc., of St. Paul, Minn., sends the following report of a successful school in the Twin Cities.

A year and half ago the Master Builders' associations of St. Paul and Minneapolis started a movement for the purpose of solving the problem of the supply of mechanics in the building trades, the number of mechanics entering many of the building trades having for many years been insufficient to meet the demands of the increasing building industry of the Northwest. The contractors in these groups are men with wide practical experience, many of whom have come up in the ranks and know the various processes of the development of mechanics. They are therefore in position to determine how best that question could be solved.

Owing to the fact that the supply of mechanics had largely been controlled by labor organizations and was surrounded by so many restrictions, the possibility of developing the required number of men thru these organizations was known to be out of the question.

Raise \$6,000 for Trade School.

As a result, a fund of \$6,000 was raised in the spring of 1921 among their numbers, and the Minnesota Building Trades school established in the Midway district. Since the trade in which there was the most acute shortage was that of bricklaying, it was decided that classes in that trade be first established. A practical man was engaged as an instructor, and publicity given to the fact that trade education in the bricklaying lines was to be had at the school.

The result of this undertaking has been that during the first 12 months of the school, ending on May 1, 1922, 102 students



Turning Apprentices into Bricklayer Journeymen in Six Months at Trade School in St. Paul.

have been enrolled. The course lasts six months and the men, as fast as they show proper efficiency, are given an opportunity to enter the employ of the contractors. It has been claimed by the advocates of the old system of apprenticeship controlled by labor organizations, that a period of three years was necessary in order to teach a man this trade. The result of the class work at this school has shown that many men acquire sufficient efficiency to enable them to undertake work at the trade after a training of a period of from four to six months.

A tuition fee of \$25, payable either in cash or a note, is charged. Men may enroll at any time. The system of instruc-

tion being individual in character, the progress of the more advanced students is not delayed. This school has proven to be a success in every particular. It is relieving a shortage of about 33⅓ per cent. of mechanics in normal times in this particular trade. It has given many men who heretofore have been barred because of their age, an opportunity to learn a useful trade. Apprenticeship in the union is limited to men under 21 years of age, but there is no age limit for a student in this school.

There is no intention of forcing wages down by the establishment of this course. It is operated solely to relieve the present shortage of building mechanics.

Cleveland and San Francisco

Cleveland also has started a bricklayers school, located at Warring School, Payne Avenue and East 32nd Street. Students are required to take instruction four hours every week for a period of four years. As fast as they are moved up in their work, new apprentices are added. The school opened with 120 students. The plan is the outcome of many months of work on the part of the bricklayers' union local, the building trades and employers' association, and the board of education. The chief instructor is Robert A. Hart, a member of the union. The Cleveland Builders Supply & Brick Co. is supplying the brick, lime, cement and other materials required. The school is made possible by the Smith-Hughes law, and is expected to have a significant effect in increasing the supply of bricklayers in the northern Ohio district.

For some time Oakland, Cal., has had a school for bricklayers, and San Francisco one for plasterers and plumbers. Both of these have been very successful. On account of the scarcity of bricklayers in that district, Warren Rider, who has charge of the publicity work for the Industrial Relations Association of San Francisco, has announced that the Association will add a bricklayer's course in that city in the very near future. He further says that building activity under the American Plan agreement in San Francisco increased from \$11,200,000 in the first six months of 1921 to \$23,350,000 in the same period of 1922.



PAVING ASSOCIATION LOSES GREENOUGH

Maurice B. Greenough has resigned as secretary of the National Paving Brick Manufacturers' Association, and about the first of next year will leave Cleveland for Chattanooga, Tenn., where he will be associated with W. M. Lasley, of the Southern Clay Manufacturing Co., in the manufacture of paving brick, contracting, and other enterprises.

Mr. Greenough became assistant secretary of the paving brick association in 1918, and one year later was appointed secretary. For several years previous, after his graduation from Tufts College in 1912, he was engaged in engineering work, first as a civil engineer with a contracting firm, and then as instructor in mechanical, civil and highway engineering at Rhode Island State College and the Case School of Applied Science. In 1917 he was chief engineer of the National Paving Brick Manufacturers' Association.

Mr. Greenough is also secretary of the Heavy Clay Products Division of the American Ceramic Society, and secretary-treas-

urer of the Joint Rescarch Committee composed of members of the principal clay product associations.

His successor to the secretaryship of the National Paving Brick Manufacturers' Association has not been named, but will probably be appointed in the next several weeks.

DELAWARE FAMILY HAS ANOTHER MEMBER

The Johns Brick & Tile Co. has filed articles of incorporation at Dover, Del., with a capital stock of \$100,000. The United States Corporation Co. represented the new organization.



A. S. T. M. Makes Changes at Annual Meeting

Among the matters of interest that were taken up at the twenty-fifth annual meeting of the American Society for Testing Materials, the following are of interest to readers of Brick and Clay Record.

Committee C-3 on Brick withdrew proposed Tentative Specifications for Concrete Building Brick, explaining that many members of the committee had felt there were hardly sufficient data before them to pass favorably on these specifications.

Committee C-6 on Drain Tile, to carry on its work of reducing the number of standard sizes, has formed a sub-committee on Standard Sizes.

At the meeting held during the recent annual meeting, G. W. Pickels, Assistant Professor of Civil Engineering, University of Illinois, was elected secretary.

The report of Committee C-4 on Clay and Cement Sewer Pipe was presented by the vice-chairman, A. J. Provost, Jr., in the absence of the chairman, Rudolph Hering. The committee presented an addendum to its report, comprising proposed revisions in the Standard Specifications for Clay Sewer Pipe (C 13-20) and for Cement-Concrete Sewer Pipe (C 14-20) agreed upon by unanimous action at a meeting held during the annual meeting, at which 18 of the 27 members were present. These revisions are as follows:

- Section 6.—Omit the last sentence. Add to the preceding sentence the words "except that in no case shall the number of specimens furnished be less than five."
- Section 7.—Insert after the word "test" in the seventh line, the words "without charge." Omit the words "without charge" in the eighth line and substitute the words "to be selected as specified in Section 6." Add a new paragraph to read as follows:
- "In addition to the foregoing requirements, failure of individual specimens to develop 75 per cent. of the average crushing strength requirements shall be cause for rejection of the shipment, but the seller may cull the pipe and submit the balance of the shipment for retest, and, if the shipment then passes all of the requirements of these specifications, it shall be accepted."

Section 11.—Omit the portion of the last sentence reading as follows:

"and by then multiplying the quotient by the following factors:

	10
For knife or two-edge bearings.....	7
	10
" three-edge bearings	7
" sand bearings	1.00"

Table II.—Amend Table II to read as follows:

Table II.—Physical Test Requirements of Clay Sewer Pipe			
Internal Diameter, In.	Average Crushing Strength, lb. per lin. foot		Maximum Absorption, per cent.
	Knife Edge ¹ and Three-Point ² Bearings	Sand Bearing ³	
4.....	1000	1430	8
6.....	1000	1430	8
8.....	1000	1430	8
10.....	1100	1570	8

12.....	1200	1710	8
15.....	1370	1960	8
18.....	1540	2200	8
21.....	1810	2590	8
24.....	2150	3070	8
27.....	2360	3370	8
30.....	2580	3690	8
33.....	2750	3930	8
36.....	3080	4400	8
39.....	3300	4710	8
42.....	3520	5030	8

¹See Section 11. ²See Section 12. ³See Section 13.

The proposed revisions were accepted for publication as tentative provided a subsequent letter ballot vote of the committee is favorable, and the report of the committee as amended was adopted with this understanding.

The report of Committee C-6 on Drain Tile was presented by Anson Marston, chairman, and adopted.

The report of the Society's representatives on the Joint Concrete Culvert Pipe Committee was presented by Anson Marston, chairman, who described the activities of the Joint Committee and especially the investigation at the Iowa Engineering Experiment Station on determination of actual loads on pipes and the development of the true theory of loads on pipes in culverts.

The report of Committee C-10 on Hollow Building Tile was presented by its chairman, W. A. Hull, and adopted.

The report of Committee C-3 on Brick was then presented by its chairman, T. R. Lawson. The recommendation of the committee that the seven sizes and types of paving brick agreed upon in a conference organized by the Department of Commerce, as reported by the committee, to be published as tentative in the form of a proposed revision of the Standard Specifications for Paving Brick (C 7-15), was approved.

The chairman reported that the proposed Tentative Specifications for Concrete Building Brick that were made a part of the committee's report as reprinted had failed of adoption in the committee on letter ballot vote, the vote being affirmative 10, negative 12. Mr. Lawson explained that many members of the committee had felt there were hardly sufficient data before them to pass favorably on the specifications and therefore moved to withdraw the proposed specifications and the appendix to the report containing data from a series of tests of concrete brick and concrete brick masonry. This motion was carried, and the report as thus amended was adopted.

The report of Committee C-8 on Refractories was presented by R. C. Purdy, chairman, who called on W. A. Hull to present the data in Appendix I on "Thermal Conductivity in Specifications for Refractories." On motion, the report was adopted.

A meeting of Committee C-3 on Brick is scheduled to take place in Troy, N. Y., some time during the month of November.



NEW FULLERS EARTH PLANT IN TEXAS

The Melchers Fullers Earth Company has been incorporated at San Antonio, Texas, for \$100,000 for the manufacture of Fullers earth. The incorporators are F. J. Dykstra, L. L. Shropshire and E. G. Potter.

Business Briefs and Trend

LIVING COSTS UNCHANGED FOR SIX MONTHS

The cost of living among wage earners' families in the United States on July 15, 1922, was 55.6 per cent higher than in July, 1914, according to the results of an investigation just completed by the National Industrial Conference Board, New York. Between June 15 and July 15, 1922, there was an increase of one-tenth of one per cent.; brought about by slight rises in clothing and food prices, and a slight decline in average sundries prices.

Between July 1920, when the peak of the rise in the cost of living since 1914 was reached, and July 1922, the cost of living dropped 23.9 per cent. All available information indicates that since March 1921, the cost of living among wage earners the country over has remained practically stationary. The accompanying table shows in detail the changes in the cost of living since January, 1920.—The Iron Trade Review.

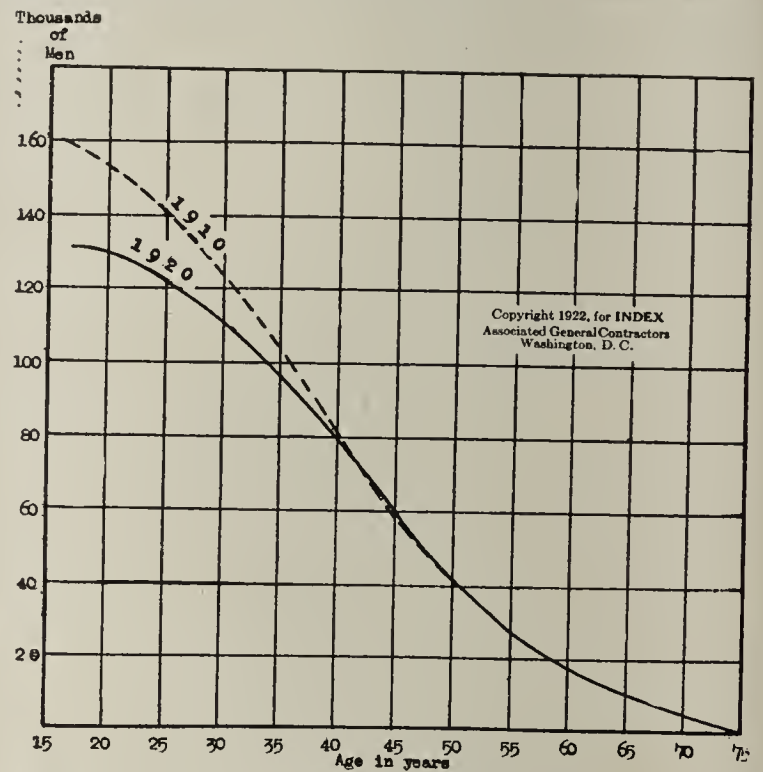
Living Costs Compared

(Percentage over July, 1914)

	July, 1914	All items	Food	Shel-ter	Cloth-ing	Fuel and light	Sun-dries
Jan., 1920	90.2	97	43	170	49	77	
Feb., 1920	93.5	101	45	177	49	78	
Mar., 1920	94.8	100	49	177	49	83	
Apr., 1920	96.6	100	50	188	51	83	
May, 1920	101.6	111	51	187	55	83	
June, 1920	103.0	115	51	176	61	85	
July, 1920	104.5	119	58	166	66	85	
Aug., 1920	103.2	119	58	155	69	85	
Sept., 1920	99.4	107	59	155	78	88	
Oct., 1920	97.3	103	59	148	83	90	
Nov., 1920	93.1	93	66	128	100	92	
Dec., 1920	90.0	93	66	105	100	92	
Jan., 1921	81.2	78	66	87	100	92	
Feb., 1921	76.3	72	66	74	98	90	
Mar., 1921	68.7	56	71	74	87	85	
Apr., 1921	67.6	56	71	69	79	85	
May, 1921	65.7	52	71	68	78	85	
June, 1921	61.9	45	71	62	78	85	
July, 1921	63.1	48	69	64	79	85	
Aug., 1921	62.0	48	69	59	79	83	
Sept., 1921	64.8	55	69	57	79	83	
Oct., 1921	63.7	53	69	60	79	80	
Nov., 1921	63.0	53	69	61	79	78	
Dec., 1921	62.7	52	69	57	79	78	
Jan., 1922	61.4	50	69	56	78	78	
Feb., 1922	57.7	42	69	56	77	77	
Mar., 1922	54.7	39	65	56	74	74	
Apr., 1922	54.8	39	65	55	74	74	
May, 1922	54.9	39	65	56	74	74	
June, 1922	55.4	41	65	53	74	74	
July, 1922	55.6	42	65	54	74	74	

ington," the Federal Trade Information service says. "Secretary Mellon expressed the opinion that it forecasts increased activity in the steel industry, while Secretary Hoover thinks the move indicates expectation of orders requiring more men. Both agree the wage increase is a favorable industrial sign and fore-shadows prosperity in the industries."

The textile mills in New England are gradually restoring their old wage scales and the American Window Glass Co. has increased their wages 15 to 25 per cent.



Cumulative Number of Brick and Stone Masons Older Than Each Indicated Age. In 1910 There Were 160,000 Men Over 16 Years of Age and Only 41,000 Over 50 Years of Age. 1920 Shows About 15 Per Cent. Less Men Than 1910 Over 20 Years of Age.

ANOTHER PERIOD OF INFLATION THREATENED

The opinion prevails in some quarters of the financial districts that the country is heading for another period of inflation as a result of the failure of coal operators to reduce wages from the wartime peak level and the advances announced in the steel, textile, and other trades for the purpose of preventing a migration of labor to other industries where the wage scale is more attractive. This situation will lead to nothing else than higher costs and a return of the vicious times of higher prices. If such a development materializes, the prediction is made that the return of a period of inflation would be of short duration and may probably last not more than a year. The reaction which will follow will be more severe than that witnessed last year.

WAGES ON INCREASE

The United States Steel Corporation recently announced an increase of 20 per cent., effective September 1, in the wages of their 155,000 common laborers, making the rate 36 cents per hour.

"The action of the steel industry in granting a 20 per cent. wage increase has occasioned considerable comment in Wash-

BRICK COMPANIES WIN RATE COMPLAINT

As reparation on account of unreasonable rates charged for the transportation of numerous carloads of mine-run bituminous coal from certain mines in the Clinton and Brazil districts in Indiana, the Interstate Commerce Commission has ordered the Director General of Railroads, as agent, to pay to Burns & Hancock Fire Brick & Clay Co. \$778.73 with interest from September 1, 1919; Hydraulic-Press Brick Co., \$412.42 with interest from August 1, 1919, and National Fire Proofing Co., \$1,730.94, with interest from August 15, 1919, and \$17.18 with interest from March 5, 1920. The coal moved from the mines to the complainants' plants at West Montezuma, Brazil, and near Terra Haute, Indiana.

BUMPER CROPS PROMISED FOR 1922

The Government's latest crop forecast indicates that the season's production of basic wealth from the farms will be well above the average. With a wheat crop estimated at 805,000,000 bushels the country will have an abundance enjoyed in no pre-war year, and exceeded only in three war years and two years

following. The estimated corn crop of 3,017,000,000 bushels nearly equals the stupendous yield of last year and exceeds the yearly average for the five years from 1916 to 1920 by 6.2 per cent. Taking all the grains together it is found there is a gain of 3.8 per cent. over 1921 and 0.7 per cent. over the five year average.

The total valuation of 16 leading crops at present prices is computed at \$7,203,000,000, a gain of 39 per cent. in value since December 1, 1921. This increase may be diminished by somewhat lower prices at the height of the harvesting season, but the farmers will still be ahead of last year due to cheaper cost of production this season.

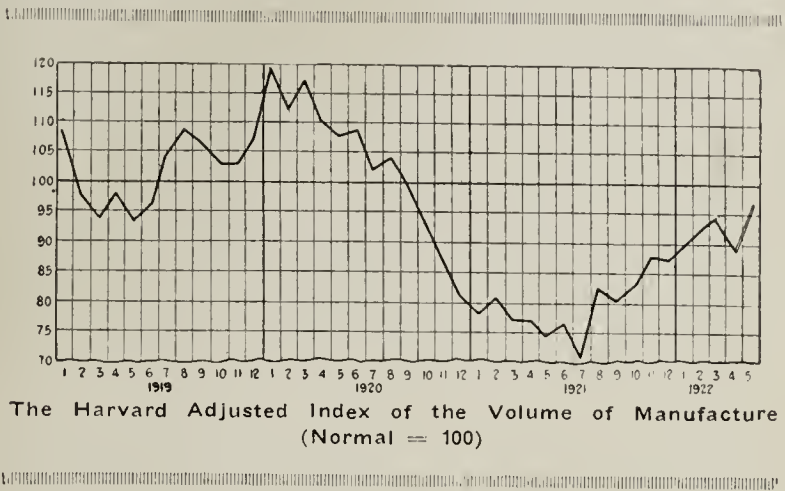


CAR SHORTAGE RAISES PRICES

A shortage of cars caused by the railroad strike is beginning to assume proportions in the southeastern territory, and while brick plants as a whole are continuing steady operation it is being found necessary to hold a good part of the brick in the yards as not enough cars can be obtained to keep up with production. Demand for brick is unabated and a majority of the plants are operating steadily at close to capacity production, with orders in excess of production as a whole. However, a

continuation of the railroad strike for a much longer period may result in curtailment for it is already beginning to hold up building operations in some of the larger centers of the southeast.

Brick prices in the Georgia section have advanced about 10 per cent. the past two months, manufacturers advise, and the tendency is still upward.



The Building Situation

WITH JULY BUILDING contracts in the New England district rounding out a total of \$25,900,000, the month of August has equalled, if not exceeded this figure, despite the heated term and the natural inclination for new construction to lag. The month of July noted represented an increase of about 21 per cent. over the corresponding period of a year ago. The new work now out for bids, on the boards or contracted for aggregates close to \$30,000,000.

Boston continues to advance in building operations and the month of August is expected to show a total of close to \$4,000,000, when the official figures are available. Wakefield, Mass., in this same section, is having its banner construction year and up to the present time the value of new work is more than \$150,000 in excess of the entire year of 1921. The local building department estimates that there is \$500,000 in additional buildings now in sight. Beverly and Somerville are also far exceeding their 1921 records.

Operations at New York

Construction operations are slowing down a little at New York and vicinity due to the coal and railroad strikes. Moreover, the house-building season is drawing to a close, and commercial activities are now becoming more pronounced. Current work is now approximately \$7,000,000 to \$8,000,000 weekly in the Greater City, and it is expected that this rate will be maintained well into the fall months.

For the first time in a number of weeks, there is now a little reserve of common brick in the New York market, with price holding steadily at \$20 a thousand for best grades. Shipments are coming in from the Hudson River yards at the rate of about 50 cargoes weekly, but just how long manufacturers will maintain this volume is rather problematical, as many yards are encountering "pinch" conditions in the matter of fuel. Regardless of what this may be, whether coal, wood or coke, exorbitant prices are being asked, and consequently, under the present situation, there is little possibility of any lower quotations. Raritan brick are growing scarcer in the market, and producers in this district are having the same troubles.

Heavy Construction In New Jersey

The warm August weather has curtailed new construction a little in the larger cities of New Jersey, but has not shown any effect on operations in the smaller communities, or in the shore districts. Consequently, the situation is being equalized and a high general rate of activity maintained. The Jersey shore, from Long Branch to Point Pleasant is having the greatest building boom in residential work for the past 15 years. It is estimated that more than \$3,000,000 in new operations are now being invested.

The seasonal yards at Hackensack, Trenton and other points in the state are making a drive on sufficient production to provide for reserves for the coming fall and winter months. Coal is still available in the Hackensack district, but is getting extremely scarce in the Trenton section. There are still large quantities of green brick to be placed in the kilns, and concerted efforts are being made to maintain operations at maximum in this department.

Commercial Operations In Philadelphia Reach Important Totals

With brick dwelling construction at Philadelphia more than holding its own, commercial and mercantile work is coming forward at a rapid pace, indicating an active fall building season, following the completion of residences designed for occupancy this year. In new bank construction alone, including improvements to present quarters, it is estimated that more than \$1,700,000 will be expended. Hotels and theaters are other important factors and will involve for immediate operations, well in excess of \$1,000,000.

Industrial work is coming to the front in different cities in the eastern part of Pennsylvania, including Lancaster, Reading, Easton and York. In the first noted city, an increase of \$200,000 over July totals has been recorded before the close of August, and it is expected to be considerably higher by the end of the month.

(Continued on page 346.)

A Simple Control Porosimeter

Apparatus for Quickly and Accurately Determining the Porosity of Any Clay Ware—Planned for Paving Brick, But Serviceable for Any Product

G. A. Bole and F. G. Jackson

Physical Chemist and Assistant Physical Chemist, Respectively, U. S. Bureau of Mines

A POROSIMETER based on the air displacement principle, as brought forward by Dr. Washburn¹, has been developed at the Ceramic Experiment Station of the U. S. Bureau of Mines, Columbus, Ohio, and has been installed on the laboratory car used in connection with the industrial kiln investigation being carried out in cooperation with the four Heavy Clay Products Associations.

The desirability of porosity control during the firing of a ceramic kiln when burning such a product as paving block is self-evident.

Settle does not tell in what part, top, middle or bottom the vitrification is taking place, to say nothing of the extent to which it is progressing in each region. A close temperature control by means of cones and pyrometers will reduce the necessity for porosity determinations after a firing schedule has been once established, but during the establishment of this schedule a porosimeter is a most desirable instrument.

While there is not a quantitative proportionality between porosity and rattler test on account of variations in the materials used, in mechanical mixing, pugging, machining, drying, etc., before the ware enters the kiln, and to variations in water-smoking, oxidation and soaking during firing, nevertheless it has been found that a pronounced qualitative relation does exist. Each manufacturer has an approximate porosity to which he would prefer to burn.

Uniform Control Means Profits

When we consider that the porosity of pavers as drawn from a good burn at one plant varied between 8 and 22 per cent. pore space, according to air displacement method (this variation corresponding to a variation in rattler test of from 18.8 to 25.2 per cent.), we can easily see that a more uniformly controlled kiln would have meant money in the hands of the producer.

If porosity is plotted against height in the kiln, the pitch of the burn curve indicates the uniformity of burn. The ideal condition is of course to have the curve a straight line and approach the perpendicular as nearly as possible. In the happy balance of this condition with considerations of economy lies the solution to the problem of firing practice.

Uniformity of burn curves have shown that variations of porosity in different parts of a kiln of 30 per cent. pore space are not uncommon practice in the case of face brick. In the case of building tile, where match is essential, shrinkage as indicated by porosity has been found to vary enormously in different parts of the kiln.

As a control, the water absorption—suspension method is well-nigh unusable. The information is not available when needed, since the process takes too long.

The gas expansion method gives accurate results in a very few minutes. The brick is drawn from as far back in the kiln as convenient and covered with sand to prevent surface checking. The sand is removed in about an hour and the brick allowed to cool in the air. The brick must be at atmospheric temperature before an accurate determination can

be made, since the method is dependent on the expansion and contraction due to change in pressure. Washburn and Bunting explain fully the theory of the determination in the February number of the Journal of the American Ceramic Society, already referred to, as follows: "The pore volume is measured by allowing the gas which fills the pores to expand into a measured volume and measuring the accompanying fall in pressure."

Apparatus Easy To Make

The apparatus used at the Bureau is one of simple construction, as disclosed in the accompanying illustration, and is made of materials easily available. It is shown both in photograph and conventionalized cross-section.

(A) is an inverted bell jar within which is a square sheet iron container just large enough to hold a paving block. The jar is provided with a ground glass plate, making an air-tight cover. The container has a hole in the bottom thru which a tube entering thru a rubber stopper in the neck of the jar fits snugly. The free space around the container is filled with boiling paraffin which is allowed to cool under vacuum; when cool it will be necessary to fill with more hot paraffin the pipe produced by contraction on cooling. It is of course essential to get all the occluded air out of the paraffin.

B is a two liter reagent bottle.

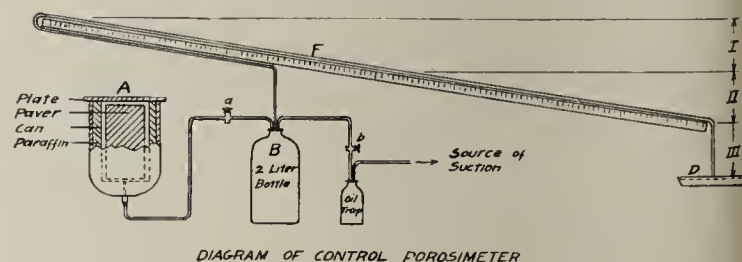
E is an oil trap.

C is a Cenco Nelson vacuum pump which may be replaced by a simple water pump.

D is a flat mercury reservoir.

F is a sloping column manometer.

It is desirable in most cases to use a sloping column manometer in order to increase the accuracy of reading, as the per cent. of error due to inaccurate readings on a perpendicular column is excessive, amounting easily to 10 per cent. of the pore space when that volume is 10 per cent. of the brick, i. e., if the correct porosity be 10 per cent., a perpendicular column



could easily give 9 per cent. In the column as used, however, where distance I=II=III, the error of reading is divided by six. The accuracy, within limits, can be made whatever is desired by changing the slope of F.

The reservoir D should be shallow so that the height of III shall not vary materially as mercury is drawn up into the tube. A variation of less than a millimeter is essential.

Advantages of Sloping Manometer

In the apparatus as constructed and shown, the sloping column of the manometer is set at such an angle that a dis-

(1) Edw. W. Washburn and Elmer N. Bunting: "Determination of Porosity by the Method of Gas Expansion," Jour. Amer. Ceramic Soc., Feb., 1922, page 113, et seq.

tance of one meter on it is equal to a horizontal rise of 150 mm. Also the pan of mercury is so set that it is 150 mm. below the meniscus when the mercury reaches 0 mm. on the scale. The scale is thus available for reading reduced pressures of from 150 mm. to 450 mm. and the accuracy of reading is increased by $\frac{1,000}{150} = 6\frac{2}{3}$ times.

The accuracy of the apparatus is also greatly increased by having the brick fit the cavity as snugly as possible. In the case of a $3\frac{1}{2} \times 4 \times 8\frac{1}{2}$ inch paver, the cavity is $4\frac{1}{4} \times 4\frac{1}{4} \times 8\frac{1}{2}$ inches. Thus the brick has a volume of 119 cubic inches, or 1,950 c. c., and the cavity has a volume of 154 cubic inches, or 2,500 c. c., approximately.

The volume of (B) is accurately determined at average room temperature by filling with water and measuring the water. (B) is now dried in an oven and connections made



Simple Porosimeter Made of Materials That Are Easily Available.

as shown in accompanying photograph. (a) and (b) are well fitting glass stopcocks. The tubing is thick-walled glass with small (not capillary) bore. The connections are of vacuum tubing, glued and wired on. A heavy vacuum wax should be used on the stopcocks and on the ground cover of (A).

The free volume of (A) may be determined either by direct measurement with water or by the regular method of procedure. This is as follows: The suction is started with stopcock (b) open and (a) closed. When the mercury has been drawn up to about 2,800 mm. on the scale, (b) is closed and the manometer is read. The scale should not be first tapped. Stopcock (a) is now opened and the air in (A) is allowed to expand into (B). When the two are in equilibrium, the manometer is read again. One of the stopcocks should be removed to break the vacuum before the glass plate is taken off.

Method of Obtaining Results

The theory of calculating results is simple. The volume times the pressure in (A) plus the volume times the pressure in (B) equals the sum of the volumes times their common pressure. $(PA_1 \times VA) + (PB_1 \times VB) = P(A_2 + B_2) \times V(A + B)$. The volume of (A) is unknown. Its pressure is that of the atmosphere, taken let us say at 750 mm. The volume of B has been measured. Its pressure is 750

mm. less the manometer reading times $\frac{150}{1,000}$. The manometer reading should be read as between one and three meters. The sum of the volumes is the same as before and their common pressure is atmospheric, 750 mm. less the second manometer reading times $\frac{150}{1,000}$. The formula then is [Vol. A. (unknown)

$$[750] + [Vol. B (measured) \times (750 - \frac{\text{first reading} \times 150}{1,000})] = [Vol. A + Vol. B) \times (750 - \frac{\text{second reading} \times 150}{1,000})]$$

If the first reading was 2,800 mm. and the second 1,247 mm., this may be expressed more compactly as follows: [Vol. A (unknown) \times 750] + [Vol. B (2,000 c.c.) \times (750 — 2,800 \times 150

$$\frac{1,000}{(750 - \frac{1,247 \times 150}{1,000})}] = [Vol. A (unknown) + Vol. B (2,000 c.c.)] \times \frac{1,000}{[2,000 \times (750 - 420 = 330)] = (2,000 + X) \times (750 - 187 = 563)}]$$

By subtraction we obtain 187X = 466,000. Then X = 2,492 c. c.

The operation and calculation is exactly the same whether A be empty or contains a paving brick. If the brick be of regular shape, we can find its volume with calipers. If it measures exactly 2,100 c. c. then the free air space should be 2,492 less 2,100 = 392 c. c. If on measuring the air in A as above outlined we find there is 602 c. c., then the air in the pores of the brick makes up the difference, amounting to 602 — 392 = 210

$$\text{c. c. Then } \frac{210 \times 100}{2,100} = 10 \text{ per cent., which is the porosity of the brick. Percent. porosity} = \frac{100 (\text{volume A containing porous brick} - (\text{volume A empty} - \text{measured volume of brick}))}{\text{measured volume of brick}}$$

Can Be Used for Irregular Shapes

If the brick be of irregular shape, so that accurate measurement is not possible, the brick may be immersed in paraffin at 55 deg. C., just melted, for five minutes, then plunged into cold water. The paraffin sinks into the brick and effectually seals the pores. It may then be dried and put into the porosimeter again and the volume of the remaining air in A determined. The volume subtracted from the total volume of A gives the volume of the brick. The porosity can then be determined by a similar formula. Per cent. porosity =

$$\frac{100 (\text{vol. A with porous brick} - \text{vol. A with paraffined brick})}{\text{volume of paraffined brick}}$$

It is not, of course, necessary to determine the volume of A empty on each occasion. Once it has been determined, it can be used as a constant.

Once a brick has cooled, the actual use of the porosimeter requires but three minutes. Even if the brick must be paraffined, the whole operation can be accomplished in ten to fifteen minutes.

An apparatus such as described above has been in actual successful use at this station for eight months and on the laboratory car for four months.



ATLANTA TO HAVE EXPOSITION

The "Made-in-Atlanta" exposition which is to be held at the Atlanta, Ga., Auditorium, September 18 to 25, will be entirely educational in its nature, according to Virgil W. Shepard, general manager. While it will include displays of all products manufactured by the Atlanta plants, the principal feature will be the operation of miniature plants illustrating the process of manufacture from the raw material to the finished product. Brick industries of the city will cooperate in such a display. and will illustrate by the operation of machinery the process used in the manufacture of brick and clay products from the time the clay is first taken out of the ground until it has been made into the finished product, with the possible exception of the burning.



MORE COAL STEAMERS CHARTERED

Seven Shipping Board steamers, having a total capacity of 52,000 tons, were chartered last week by the Emergency Fleet Corporation to carry coal from England to the United States. To date a total of 65 Shipping Board steamers have been chartered by the Fleet Corporation to import coal.

Soluble Salts in Clay Wares

Conclusion of Article Which Appeared in Last Issue—Further Information on Suggestions for Methods of Overcoming Trouble With Efflorescence or Scum—Benefits of Hard Burning Explained

C. W. Parmelee

Acting Director, Department of Ceramics, University of Illinois

The first part of this article treated of the variations in the definition of the terms efflorescence and scum, the character, formation, amount and determination of soluble salts, the effect of weathering, and the use of barium compounds. A table of solubility was added to show why barium compounds assist in overcoming trouble from these sources.

IT HAS BEEN PROPOSED to coat clay wares with glue, flour, starch or rubber before drying. This may act in a favorable manner in at least two ways. (1) The drying proceeds thru the evaporation of water from the surface. If a surface is coated in such a manner as to retard or prevent the evaporation of the water from it, then the chief movement of the water will be to and from the uncoated surfaces. That is, the course of the movement of the water current carrying the soluble salts will be to the other surfaces where they may not be objectionable. (2) The soluble salts, *i. e.*, sulfates are decomposed during the burning operation and rendered unobjectionable. (3) The soluble salts may be carried into the surface coating and there deposited. Subsequently the coating dries and falls off. This may apply to the use of flour, starch and glue but not to the use of tar as has been proposed.

After the ware has been dried, scrape off a portion of the surface of the same and then burn the ware under such conditions as to prevent the formation of the kiln white. If the burned ware shows salts on the unscraped portion, but not on the scraped, it is obvious where the trouble originated.

Setting of the Brick on the Dryer Cars

The manner of placing the brick upon the dryer cars must have an influence upon the movement of the water in the ware and consequently the place of deposition of the salts. That is to say, the faces of the brick which are exposed to the air dry freely while those in contact dry only by the removal of the water thru the capillaries leading to the outer surfaces.

Therefore, the efflorescence appears on the exposed surfaces only.

According to the classification previously discussed we may consider the occurrence of surface coatings upon burned ware under two heads, namely, efflorescence and scum.

Efflorescence is the deposition upon the surface of soluble salts, which have originated in the interior of the ware and have been brought to the surface in solution. These may have been present originally in the raw clay and may have come to the surface during the drying process in the dryers or during the early state of the firing.

Scum is the surface coating of salts formed by the action of kiln gases during the early period of the burn. The chief and probably only offenders are the oxides of sulfur—sulfur dioxides and sulfur trioxide—which are evolved by the burn-

ing fuel and by the decomposition of the pyrites present in the clay. It is altogether likely that we have chlorides of sodium and other bases present in the fuel which react in some way with the clay wares, but it is doubtful that they have a harmful effect upon the ware. If present during any part of the burning period they are decomposed and react upon the clay wares without leaving any surface indications. As I will show further on, these chlorides may exert a different effect during the cooling period.

Sulfur in the Fuel

All fuels contain variable amounts of sulfur occurring in different forms. Wood is practically free from it and the little which it contains has a negligible influence upon clay wares. Therefore, it has long been esteemed the most desirable fuel for use in burning decorated pottery, since the colors will then give the most desired effects. However, wood is no longer available in sufficient quantity and sufficiently cheap to be considered as an available fuel for most clay wares.

Peat, which is an abundant fuel in some parts of this and other countries, is also a desirable fuel for the same reason.

However, the fuels which are available in quantity and at a suitable price contain more rather than less sulfur and the problem is to use them intelligently in order to minimize the inherent bad qualities.

Sulfur is present in coal, oil and gas in a variety of forms. The most readily distinguished and most abundant in coal is the sulfide of iron. Sulfide of iron is one of the important raw materials used in the manufacture of sulfuric acid. The other essential raw materials are free oxygen and water. When fuel containing pyrites is burned in a furnace of any type we have the same materials and the same conditions as are obtained in the manufacture of sulfuric acid. If the temperature of the kiln is sufficiently high, this acid will pass thru the kiln with little or no effect upon the ware. But during the early stages of the burn the story is quite different.

Dry Brick Never Thoroly Dry

Brick set in a kiln are never entirely dry. Usually the drying process falls far short of being complete and a considerable amount of water is retained. Even when dried at 212 deg. F. the clay clings tenaciously to a small percentage of water. But assuming that the drying operations have been ideal, as soon as the dry ware cools below its drying temperature it promptly appropriates moisture from the atmosphere which may amount to 10 per cent. of its weight. This happens during the period of its transfer from dryer to the kiln and during that period in the kiln when it is at a temperature of 212 deg. F. and lower.

Part of the moisture which the clay grabs is supplied by the air passing thru the kiln and part by the water which is always one of the products of combustion.

The conditions which we have to consider during the early

stage of the burn are therefore—a mass of moist cold brick, and a plentiful supply of the oxides of sulfur. The result is a condensation on the moist brick of dilute sulfuric acid which clings tenaciously to the clay and attacks vigorously the mineral material. The carbonates of soda, potash, lime, magnesia and iron speedily succumb and their sulfates are formed. Other minerals offer more resistance but the oxides of iron and evidently certain silicates of alumina and other bases yield in greater or less degree. An excellent example of the course of this action is observed with limey clays. These normally burn to a cream color. Under certain conditions we obtain ware flashed red. The red color is due to the action of the sulfur gases upon the lime, changing it to the sulfate and permitting the iron oxide present to exert its normal influence upon the development of a red color.

Water-smoking

The proper method of treatment of a kiln during the water-smoking period of the burn is to remove the moisture from the ware and to warm up the ware as speedily as it is safe to do so. This may be accomplished by stimulating the flow of a large volume of heated air thru the kiln, which may be difficult to accomplish owing to the sluggish draft of cold flues and stack. If so, a fan may be used advantageously or the kiln may be connected with a stack which is serving a kiln already under high fire, or a small fire may be built at the base of the stack.

Further it is of advantage to water-smoke with fuel having a low sulfur content such as wood, anthracite coal or coke. All of these fuels are used in various parts of the country during the water-smoking period with good effect.

The manner in which ware is set has much influence upon the progress and amount of scumming and efflorescence. Ware set too closely in a kiln retards the draft and thereby facilitates scumming. A friend recently showed me an example of brown scumming which developed on brick set in an open kiln. It has been suggested as an explanation for this case that the courses were set too closely, especially at the top and therefore the acid gases attacked available iron and alumina compounds forming soluble salts which left a yellowish brown discoloration. A similar occurrence is reported to have been observed on buff brick burning in the ordinary kilns with crowns.

As already explained, the portions of brick which are in contact with each other do not show the salts, but only the exterior surfaces exposed to the kiln gases.

Oxidation and Reduction

The oxidation of the pyrites to form sulfuric acid takes place only in the presence of an ample supply of free oxygen. The sulfates of lime, magnesia and the alkalis form therefore only under oxidizing conditions. It naturally follows that reducing condition, *i. e.*, burning with an insufficient supply of oxygen is unfavorable for the formation of sulfates. Consequently, we have the use of reducing conditions as a method of preventing the development of sulfates. Also by reduction it is possible to convert the sulfates already formed into sulfites which decompose readily under the influence of heat.

Influence of Hard Burning

The amount of soluble salts formed on burned ware does not seem to be closely related to the amount of soluble salts in the clay. However, the amount of soluble salts in ware decreases as we burn the ware at higher temperatures, for example:

A soft burned brick contained 0.4 to 0.5 per cent. soluble salts. The same brick burned harder contained only 0.001 to 0.003 per cent. soluble salts.

Ries²⁰ cites an example of a limey Wisconsin clay which

contained a few tenths of a per cent. soluble material. When burned at different temperatures it gave the following results:

A—softest burn.....	4.50 per cent sol. salts
B	2.20 per cent sol. salts
C	1.42
D	1.23
E—hardest burn.....	1.03 per cent sol. salts

However, as shown in the above table only part of the soluble salts becomes fixed. Another investigator²¹ found that only a little more than a third of the total soluble salts were fixed by burning of a fire brick.

²² Laboratory experiments on the effect of volatilizing ferric chloride in the kiln during the burning gave good red colors free from scumming. Factory experiments on the application of a solution of two pounds per gallon per three thousand brick was promising of good results altho not quite satisfactory. Similar experiments using a solution of the sulfate of iron and applying it to the damp brick prevented scumming, but was not as effective as the ferric chloride.

Alkaline Scum

According to Searle's Clayworkers' Handbook²³ alkaline scum may be due to the use of oil containing soap. It appears as patches of glazed surface on the ware.

A form of soluble salts which apparently has not been discussed in literature, altho seemingly frequently observed, is the appearance of a whitish coating upon brick in the kiln after opening the same, especially upon those near the door; or appearing upon the brick soon after removal from the kiln. Its appearance seems to be influenced by general atmospheric conditions. Further, this white coating is readily removed by washing the brick and once removed is permanently gone.

The recent microchemical examination in our laboratory of some brick with such a coating showed that the deposit was chiefly sodium sulfate with sodium chloride (common salt), a little calcium sulfate and no magnesium sulfate. This result is surprising and very interesting.

My inference from this analysis is that these salts were deposited during the cooling of the kiln and that they do not originate in the ware.

Explanation of Conclusions

My reasons are as follows:

If they had been present in the ware, the sodium chloride particularly would have been volatilized and dissipated in the kiln gases or decomposed and the sodium would have attacked the clay and become permanently fixed. Just as for example in salt glazing, the salt thrown into the kiln is converted into a gas and is decomposed by the hot ware forming a glaze. The sodium sulfate either was volatilized and deposited on the ware, or more probably salt vapor was present and was attacked and changed to sodium sulfate. The ware does not show a glaze because the amount of these salts is small and because they are deposited at a *temperature too low to form a glaze*.

The source of the sodium which has formed the chloride and the sulfate is probably the fuel left on the grates during the cooling, or the ashes and clinker. For example, we know that certain coals contain notable quantities of sodium chloride, so much so that the effect of it upon refractories in coking furnaces is being carefully studied in England.

The sulfur oxides which have combined with the sodium to form the sulfate have come from the burning fuel left on the grates and from the clinker.

These salts are both readily soluble in water and may be easily and permanently removed by washing the brick.

To prevent their occurrence, if I am correct in my theory

²¹Trans Amer. Ceram. Soc., 18, 611 (1916).

²²Trans. Amer. Ceram. Soc., 17, 764 (1915).

²³p. 335.

²⁰Ries, Rept. Wis. Geol. Surv., p. 21.

of their formation, the fire boxes and ash pits should be cleaned of their contents when the firing is completed, and before cooling.

I offer the above opinion as tentative and subject to modification, realizing that we still have much to learn about this peculiar occurrence.

Wall White

The occurrence of a coating of white soluble salts upon brick set in the wall is known as "wall white," "wall saltpetre" or "wall nitre." Other discolorations, yellow, green, brown, etc., sometimes are observed. These may be due to the presence of vanadium salts,²⁴ vegetable growths, etc., which we will not discuss. The causes which bring about the formation of the soluble salts in the crude clay in the drying and the burning operations have already been mentioned. Brick which normally are free from soluble salts, sometimes show them after standing in stock piles, or when built into the wall. The salts will be observed if the stock piles are built upon ground covered with cinders, ashes or slag.

The appearance of soluble salts upon brick built into the wall may be expected if soluble salts are present in the mortar or if lime is used too freely in the mortar batch. Professor Kloes in his interesting book, "A Manual for Masons"²⁵ says that the "addition of lime to Portland cement is about the worst thing that can be done," and he cites numerous instances of the bad results following such a practice. He advocates the addition of some hydraulic agent such as kieselguhr (*i. e.*, in-

fusorial earth), powdered brick, slag, etc., to the lime-cement mortar to prevent the leaching out of the soluble salts.

Notwithstanding Professor Kloes' opinion, the addition of lime to Portland cement mortar is a very common practice because it renders the mortar more easily workable under the trowel, is supposed to act as a waterproofing agent in the mortar and to some degree lessens the cost of the mortar. Numerous instances of the pernicious effects of its excessive or improper use with brick, glazed brick and architectural terra cotta may be cited, however, in substantiation of his views.

The addition of gypsum or plaster of paris to Portland cement mortar makes it more plastic and easier to set, but it is altogether probable that it will find its way eventually to the surface of the brick and appear as wall white. Therefore, its presence in or addition to mortar is highly objectionable.

Of course, soft burned porous brick are much more likely to develop "wall white" than the hard burned brick of low porosity. The porous brick are easily wetted by rains and the water thus absorbed gradually dissolves and brings to the surface fresh additions of salts.

Care in waterproofing certain parts of the masonry such as foundations, parapet walls and cornices should be observed. Manufacturers of architectural terra cotta have learned from experience the great importance of care in preventing the access of water to the body of their wares when built into structures.

Soluble salts on masonry may arise, also, from the "kind" of sand used in the mortar, from their presence in the mortar, colors which are used, and from the addition of salt to water used in mixing mortar in very cold weather.

²⁴Seeger's Collected Writings, p. 331 (Trans. by Amer. Ceram. Soc.).

²⁵Translation by A. B. Searle, p. 148.



Hudson River District Producing a Billion Brick

PRESENT BUILDING construction conditions are likened to a giant pendulum poised for an impending swing that should carry it close to pre-war normalcy, says the Dow Service building report of August 26, 1922.

Brick, the basic barometer of building activity, is for the first time since early this year a drug on the market, comparatively. The fact that there were nearly 7,000,000 brick awaiting sale on the market for August 25, in New York, with large quantities in process of being unloaded about the city, establishes the reason why bricklayers have dropped off in demand, temporarily, and shows that housing operations scheduled to be ready for tenants by October 1, have passed out of the hands of bricklayers to other finishing trades.

There is a general reluctance on the part of distributors to advance prices. Mason material dealers, for example, are carrying manufacturing price advances without passing them on to consumers. The recent manufacturers' advance in cement is an example. Spot cement is selling in the New York market, delivered on central jobs at \$3.00 a barrel. Cement for future delivery is being quoted at \$3.25 a barrel, but the actual market policy is to contract for cement at price at time of delivery.

As far as price movements in the New York market can be traced, the price changes upward have been postponed as long as possible, or until the higher cost of fuel has compelled advances and assurances are being made that just as soon as fuel costs permit, these prices will come down again. The Hudson River district will make a billion brick this season.

The solicitude of the building material manufacturer and dealer at this time is to make the market attractive for the prospective builder. There is a vast quantity of \$10, \$12, and \$15 a room construction yet to come out. The Metropolitan Life Insurance Company's project represents practically the first

post-war effort to help the poor meet the building shortage. Excavation has started for this project and in the purchase of materials precedents are being established for prices and delivery conditions that other investors will expect to get. Cheaper prices for building materials can come only when capacity production is maintained and capacity production is not going to be maintained with prices advancing out of hand. Requiring only necessary fuel the manufacturing stage is all set for full speed ahead.



BRICK FREIGHT RATES REVISED

A revision in tariffs governing rates on brick between points north of the Ohio River and in southeastern Mississippi Valley and Carolina territory to comply with I. C. C. order 10733 has been up lately before the southeastern freight committee and will be made effective October 1. It is announced that the present rates on brick to the territories mentioned are subject to Agent Kelly's combination rules tariff. They will be amended to apply on all brick, so that combination rules will govern shipments on traffic originating at or destined to points in Indiana, Illinois, Ohio, Michigan and Wisconsin. Same will also be made to apply to points south of the Ohio.



NEW ENGLAND PLANTS HAVE LONG SEASON

The increased demand for brick, owing to the resumption of construction work, coupled with delayed production due to excessive rain in New England, has resulted in an accumulation of orders at practically all of the New England brick making plants which will keep the plants in full operation for a longer period this year than for many years.

Getting the Most Out of Lubricants

Correct Use of the Proper Type of Lubricant Produces Economy in the Cost of Power—The Lubricating Bill of the Clay Products Industry Is Very Large

Gustav H. Radebaugh

Ass't Manager Shop Laboratories, Dept. of Mechanical Engineering, University of Illinois

A survey was recently made by Brick and Clay Record covering the use of lubricating oils and greases in the industry. The amount consumed or used by plants whose total output is 1,867,449 tons was investigated and computed. On the basis that the total tonnage output of the clay products industry of this country is 50,000,000 tons, the following amounts of lubricating oils are used.

Cylinder oil	313,343 gallons
Machine or engine oil.....	651,796 "
Black oil	1,215,278 "
Motor oil	195,930 "
Brick machine oil.....	2,128,563 "
Lard oil	17,936 "
Grease	1,060,547 pounds

The cost of these lubricants totaled \$1,242,439.44. These totals do not include automobile oil for either truck or pleasure cars, gasoline, kerosene, fuel oil, cutting oil for the machine shop or cylinder oil for internal combustion engines.

These totals are the very best evidence of the necessity for careful consideration in the purchase and use of all lubricants.

THE NECESSITY for lubrication of all moving parts on machinery is apparent to every one. Proper lubrication of machines will increase their life as well as obtain maximum power service at minimum expense. To eliminate friction difficulties, use the proper oil. About the only way to decide the best oil to use is to follow the suggestion of the manufacturer of the machine.

The common causes of lubrication difficulties are promoted by the way the oil and grease are taken care of before they get into the machine and the methods employed in applying them to the bearings. Many a good batch of transmission grease has been ruined by not providing the keg with a lid to protect it against grit, dirt, and so forth.

Oil is applied to many machines thru open oil holes, oil cups, felt washers, oil cups with wicks for syphon feed, sight feeds, and pads pressed against the journal. Styles of these oil cups are shown in Fig. 1.

Notice in the plate, oil cups B and F. These styles are used as dust and dirt protection. The top is turned on style B to permit the entrance of the oil can spout, while on style F the spout of the oil can presses down on the top, opening a plug which permits the entrance of the oil. If the cups become gummed with oil apply kerosene or paraffin oil freely until loosened. The cups D and E are designed to hold wicking. The lubricant is poured on to the wicking, which causes the oil to be fed slowly to the bearing. The oil cup A is used on electric motors. The oil is delivered to the bearing by means of a round felt wick which is in contact with the bearing all the time. The oil is syphoned to the journal.

Grease is delivered to the bearings and cases by compression grease cups, oil and grease guns, and sticks of grease pressed against the journals. When a machine is equipped with the plain grease cup, as shown to the left of the view, it is good practice to tighten up the cup at intervals that are established by experience. The automatic grease cups shown to the right do not need as much watching, but they must be refilled at established periods to prevent ruining the machinery by becoming empty.

Oil for Heavy Loads and Low Speeds

There are four classes of lubricants used for low speeds.

1. Graphite, soapstone and other solid lubricants used dry. This should be used on the heaviest bearings, especially those where the journal is of cast iron.

2. Solid lubricants mixed with animal fats, greases, vaseline, and so forth or resin grease. This is the best kind of mixture to use on the heavy work, especially when metal works against wood.

3. Axle grease composed entirely of animal and vegetable fats or mineral oils, emulsified with water, soap, and enough alkali to make them neutral.

4. Fixed oils, mineral oils, and mixtures of the two. In selecting oils for low speeds and high pressures, viscosity or body must be the first consideration, and next to that oiliness.

Lubricants for Moderate and High Speed

Mineral oil is generally used as the best oil for bearings subjected to comparatively light loads and running at a moderate



Fig. 1. Machinery Lubrication Supplies.

speed. In general practice the viscosity should increase as the speed of rotation diminishes. It is unnecessary to use the more expensive fixed oils instead of the cheaper mineral oils on the moderate speed bearings.

Difficulties are encountered which may be due to the improper



Fig. 2. Drilling the Hole for the Grease Cup.



Fig. 3. Cutting Oil Groove in Pulley Bearing.



Fig. 4. Cutting Oil Grooves in Bearing Cap.

lubricating methods and not to the oil. The higher speed bearings require a thin lubricating oil. If good lubrication is impossible, it may be necessary to use some fixed oil. It has been found from experiments that a mineral oil containing about ten per cent. fixed oil gives little frictional resistance and minimizes wear.

Loose pulleys should be supplied with a grease cup. It is very common, however, to supply the oil to a loose pulley by the use of the open oil holes. Experience has convinced the continuous users of the loose pulleys that the best and safest method of lubrication is accomplished by the use of the grease cup.

Placing a Grease Cup on a Loose Pulley

It is not much of a job to place a grease cup on a pulley if the shop is fitted with a drill and has in the tap and die set a pipe tap of the proper size. In doing a job like this, it is always best to have the grease cup on hand before the hole is drilled and tapped. Grease cups are sized by number,—000 the smallest size, and No. 4 the largest size. Pipe threads of standard size and number per inch are on these cups ranging in pipe size from $\frac{1}{8}$ inch to $\frac{3}{4}$ inch. As shown in Fig. 2, the first job is to drill a hole so that it can be tapped out to receive the oil cup.

A hole in a pulley can be drilled with a standard drill, boring the hole on an angle. It should be remembered that to get the best results from a grease cup, it should be placed as near the center as possible. This, of course, cannot be done on some pulley jobs unless a special drill is used. This can easily be made by welding an old short standard drill to a rod the correct length. After welding, the drill is retempered and reground and is ready for service.

To do the job, a hole is first drilled thru the rim of the pulley. A mark is necessary on the hub of the pulley to center the drill. Selecting the right drill for the job is important; for the $\frac{1}{8}$ inch size tap use a $\frac{3}{16}$ drill, $\frac{1}{4}$ inch, use a $\frac{5}{16}$ drill, $\frac{3}{8}$ inch, use a $\frac{7}{16}$ drill, $\frac{1}{2}$ inch, use a $\frac{9}{16}$ drill, and for the $\frac{3}{4}$ inch size use a $\frac{13}{16}$ drill.

It is always best to screw the tap in the hole about $\frac{2}{3}$ of the length of the thread. Then remove it and screw the cup into the hole and test for number of threads exposed on the cup. There should be about $\frac{1}{3}$ of the threads on the tap exposed when it is screwed into the newly tapped hole. This leaves enough of the thread for proper tightening with a wrench.

Oil Grooves Are Necessary

Grooves should be cut leading from the feeding hole to each side of the bearing. This is done, as shown in Fig. 3, with a round nose chisel. Before placing the pulley on the shaft, all the burrs caused by this operation should be removed with a scraper.

It is necessary to fit a babbitted bearing box to the shaft. Oil grooves should be cut in the top of the bearing to distribute the oil to all parts of the bearing.

There are several adapted standards of oil groove shapes. The general direction of grooves should be at right angles to the direction of the motion. In Fig. 4 is shown the operator cutting the oil grooves in the top bearing cap with a specially forged round nose chisel. The grooves vary from $\frac{3}{32}$ to $\frac{1}{4}$ inch in width and from $\frac{3}{32}$ to $\frac{1}{8}$ inch in depth. Side edges of the bearings should be rounded over with a file and smoothed down with a scraper.

To "spot" the shaft on the lower bearing as well as the cap, the shafting is coated with an application of lamp black or Prussian blue, Fig. 5. The shaft or mandrel is placed in the bearing and turned. The high spots in the bearing are shown by marking with the composition and are removed with the scraper, Fig. 6. This operation is the secret of successful bearing repair and requires care and time.

The foundation for a good bearing job is the evenness of a babbitt lining or bearing. If it is full of cold shorts it is impossible to maintain an oil film on the shaft. For any kind of high speed work see that the bearing is scraped smooth and to a good fit before it is placed in service.

To properly adjust the bearing cap and base so the journal

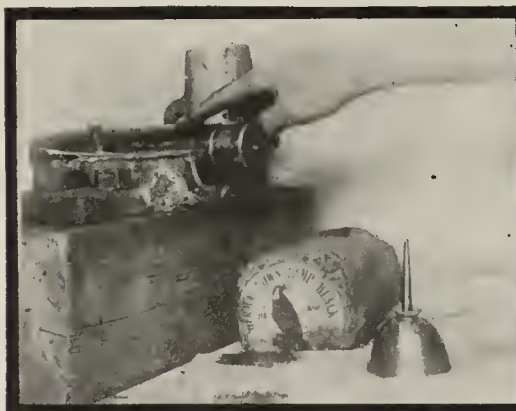


Fig. 5. Spotting the Bearing for Scraping.

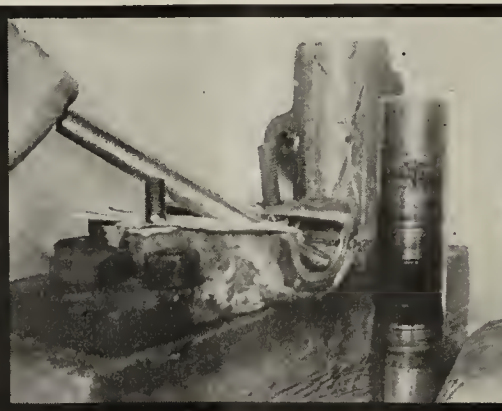


Fig. 6. Scraping Bearing for Correct Bearing Surface.

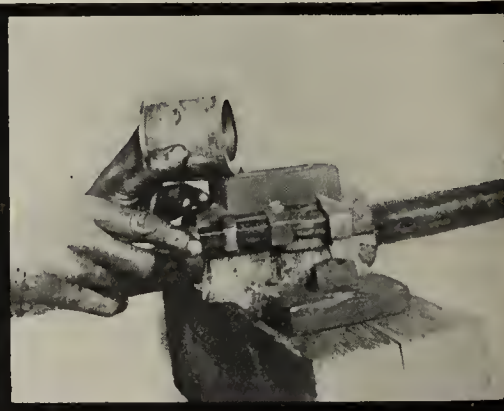


Fig. 7. Dry Graphite Will Not Help a Hot Box.



Fig. 8. Placing New Liners, Examining the Box for Cause of Continuous Overheating.



Fig. 10. Testing Lubricating Oils, Adding Kerosene.



Fig. 11. Examining for Solid Impurities.

will not be too tight or too loose in the bearing, liners are made from paper or cardboard and placed between the cap and base. Several liners are placed on each side, so that the proper adjustment can be secured by removing or adding these liners. In breaking in a new bearing the clamp bolts should always be just a little loose, so plenty of oil can work around on the bearing. They should not be left running loose for any length of time, but should be brought down to proper adjustment immediately after the oil works over the entire bearing.

Five Methods to Care for Overheated Bearings

Overheated bearings occur more often on machines other than the motive power, but of course it is not uncommon to have heated bearings on steam engines or on stationary gas motors. To continue to use a machine when the bearings are running hot is many times an impossibility, but often by applying some tried out methods of lubricants the obstacle can be overcome without stopping the machine.

Overheated bearings are caused by:

1. Incorrect design of bearing; not enough bearing surface for the load being supported.
2. Lubricant being used not suitable for bearing.
3. Improper method of applying the lubricant.
4. Bearing not properly scraped to "fit," or the babbitt bearing being poured with cold shuts.
5. Bearing not in line.

Hot bearings can be cooled down by five methods. The most common is to loosen up the bearing and apply a heavy oil. Sometimes a liberal application of water is made, not to lubricate, but to cool down the housing which supports the bearing. Talc or soapstone, flake graphite, and sulphur mixed in oil can be used for heated bearings; that is, any of these mixed with oil will, or should, have a decided cooling influence on a hot bearing.

They should be mixed to a proportion of one part talc, graphite, or sulphur to ten parts of oil. In mixing the graphite and oil the operator should see that the graphite is thoroughly mixed in the oil. This is important, as the dry flakes will not be of any benefit to the heated job. The composition is then applied to the bearing, as shown in Fig. 7. Another method is to apply as fatty an oil as possible. This quality is found in rape or olive oil.

If none of these lubricant combinations cool down the bearing, about the only thing left to do is to stop the machine and give the bearing a general inspection for improper fitting to the shaft and some of the other items mentioned as the causes for overheating.

Placing Liners in a Bearing

In Fig. 8 is shown the operation of placing a liner between the bearing base and the cap. With the proper alignment of the bearing and adjustment of the cap following the suggestions as to the fitting of a bearing to a journal, there is no reason why the bearing cannot be placed back in service without

overheating. If continuous overheating occurs, in all probability the bearing is too small for the job.

In Fig. 9 are shown the styles of babbitted bearings and one style of roller bearing. The names of these bearings describe the methods of lubrication used. In the plain bearing, the oil is fed from the top in the same manner as on the pedestal bearing, as shown in the other photographs.

In the ring bearing felt and washers are placed on the shaft. This method of lubricating shaft hanger bearings is very effective. The other method shown is by a wick arrangement which by capillary attraction carries the oil from the well to the bearing surface.

The roller bearing is the type that is replacing the babbitted bearing. Roller bearings are made in all sizes and lengths for

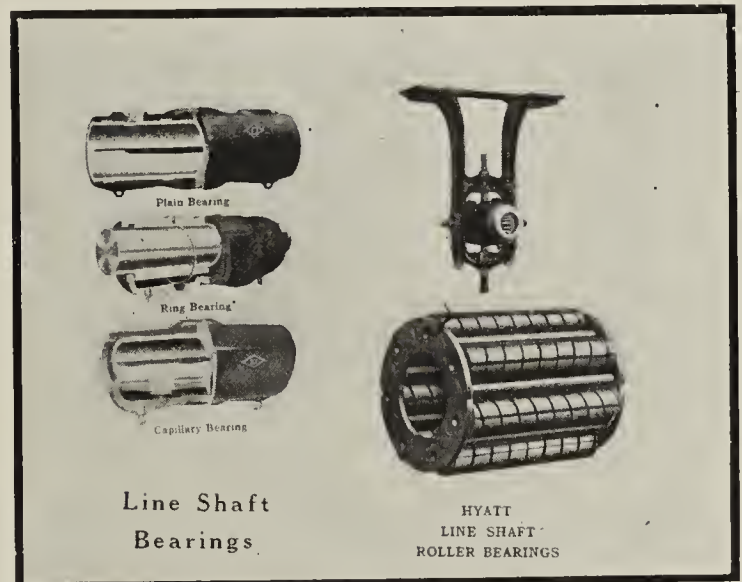


Fig. 9. Babbitt and Roller Bearings Used on Line Shafting and Machine Bearings.

the convenience of the users of machinery. Their cost is not prohibitive at all, as the high grade workmanship would indicate.

Six Methods of Testing Oil and Grease

In the operation of testing, oils and grease are shown. Oil and grease can be tested:

- (1) To determine the presence of solid impurities.
- (2) To determine if the oil contains acid.
- (3) Comparison of oil for "greasy" qualities.
- (4) To determine if the oil will resinify.
- (5) Test of cylinder oil for color when hot.

Oil often becomes gritty. Solid impurities may get into the oil by improper handling in dirty containers. To test oil for foreign particles, proceed as in Fig. 10, pour a tumbler half full of the oil and fill with kerosene. This is poured thru blotting paper, and the results shown in Fig. 11. Many a good bearing can be ruined by permitting oil that contains grit and solid impurities to come in contact with the working parts.



Fig. 12. Another Scheme Testing for Solid Impurities.



Fig. 13. Test of Oil for Resinous Properties.



Fig. 14. Temperature Test of Cylinder Oil.

Using Paper to Test Oil

Another simple method by which to make this test is to place a blot of oil on clean white writing paper. The paper is then held to the light and if the oil is free from solid impurities the blot will show transparent thruout. If not, it will show, as in Fig. 12. This scheme is a little quicker, but not quite so accurate. Good oil should not contain acid, as there is danger of this acid attacking the machine parts being lubricated.

To make this test apply a few drops of oil on a polished piece of brass or copper sheet and permit it to stand several days or about a week. If the oil contains acid, the grease spots will show up where the oil comes in contact with the metal.

A good oil must be greasy in order to have good lubricating qualities.

To Test for Greasiness

A piece of glass is cleaned thoroly, held at the angle desired, and the oils placed on the glass. The one tracing the fastest on the glass to the bottom indicates the greasiest oil. This could be called a form of viscosity test. This is not absolutely accurate, but it is a fairly satisfactory test.

As already stated, oil many times becomes hardened and gummy when on a bearing. This condition is very injurious to journals, and, if possible, should not be permitted. A good test to determine if the oil is resinifying by coming in contact with the air is to follow the suggestion as offered in Fig. 13. Two grades of oils are here being tested. The oil is placed in a shallow saucer and permitted to stand in the air for a week. At the end of this time notice if a crust has formed on the oil. Good oil should not have the slightest crust at the end of that time.

In Fig. 14 is shown a test for cylinder oil. Good cylinder oil will not change color to any noticeable degree when heated to 480 deg. Low grade oils, however, will darken when heated to this temperature.

CERAMIC DAY AT CHEMICAL EXPOSITION

The American Ceramic Society has provided the program for one of the days during the National Exposition of Chemical Industries known as Ceramic Day. This will be on Friday, September 15. The exposition will be held during the week of September 11 to 16 at the Grand Central Palace, New York.

President Frank H. Riddle will appear on the opening program of the Exposition with the presidents of other technical societies.

Messrs. E. P. Poste and Ross C. Purdy will appear on the special program on "Specifications." Mr. Poste will discuss specifications for enameled chemical ware and Mr. Purdy will describe the problems in writing specifications for refractories.

The partial program for Ceramic Day, including items of interest to clay manufacturers is:

"Application of Magnetic Separator in Ceramic Industries," by E. S. Hirschberg, Dings Magnetic Separator Co.

"Preparation of Clays and Minerals for Ceramic Purposes," by J. D. Dickey, Chemist, Industrial Filtration Corporation.

"Apparatus for Quickly Determining Fineness of Grind," by Eric Turner, Trenton Flint and Spar Co.

"Feldspar Colloquium": W. H. Landers; George M. Darby; O. O. Bowman, 2nd; V. A. Staudt; C. R. Moore; C. M. Franzheim and others.

"Manufacture of Gray Enameled Ware," by H. C. Arnold.

"Whiting for Ceramic Uses," by A. E. Williams.

"Witchery of Glazes," by Paul E. Cox.

"Architectural Faience and its Artistic Possibilities," by Conrad Dressler.

"Organization of a Decorative Ceramic Research Department; Financial and Manufacturing Considerations," by Frederick H. Rhead.



CORRECTING MISSTATEMENTS

In the August 8 issue of Brick and Clay Record, a misstatement was made in the article on the Folsom book, "A Home of Your Own and What It Means to You." This referred to the price of the book as \$1.00, and that it could be obtained from the Irving B. Hiatt Co. of Toledo. Mr. Hiatt has informed us that he is making no effort to sell the books personally. They are sold by the National Association of Real Estate Boards to realtors all over the country for \$1.50 a single copy, or \$1.00 where an order for ten or more is made. The realtors, in turn, are either loaning these books to prospective home owners, or giving them outright to those who buy.

An item in the August 22 issue of Brick and Clay Record, regarding L. M. Parsons' connection with the R. C. Tway Coal Co., Louisville, Ky., in the capacity of manager of the Building Material Department, was slightly in error. Mr. Parsons started this department of the Tway Coal Co. 2½ years ago, and it is now quite a big factor in this business in Louisville, handling many well known lines of building materials.



ADVOCATES CHANGE IN IMMIGRATION LAWS

Secretary of Labor Davis recently expressed the belief that the 3 per cent. immigration restrictive law enacted a year ago to check the influx of aliens into the United States, had outlived its usefulness and that "a radically different program for dealing with the immigration problem" must be evolved.

Immigration stock which has played so important a part in the upbuilding of America, Mr. Davis said, "is not forthcoming under the present program." Under the present passport and visé systems in effect thruout the world, he said, power is lodged in the hands of foreign governments to say who and who shall not migrate to this country. Selection of America's future citizens, he added, "is, therefore, reposed in some other government."

Power Plant Apparatus That Saves Fuel

Merits and Types of Feed Water Heaters and Items to Consider in Choosing This Type of Equipment

Robert June, M. E.

WHAT does a feed water heater accomplish? If I have no feed water heater in my plant, would it be profitable to install one? These are questions, the answer to which is of considerable interest to the manager or superintendent of a factory producing its own power.

As its name implies, the feed water heater is an apparatus for increasing the temperature of the feed water before it is admitted to the boiler. Generally speaking, for every 11 to 12 degrees the feed water is heated, there is a gain of one per cent. and a corresponding saving of coal, provided the heat which warms the feed water would otherwise be wasted. The fuel savings effected by heating feed water are shown in the accompanying table. It will be noted that the savings effected range from 1 to 15 per cent., with 7 to 12 per cent. as the most profitable amounts to be effected in practice. The table has been worked for a boiler pressure of 1 lb. as well as for a pressure of 200 lbs. and it will be seen that boiler pressure is a factor of practically no importance in the matter, inasmuch as there is only a difference of $\frac{1}{2}$ per cent. or less in savings with 1 lb. pressure, as compared with 200 lbs.

Increased Boiler Capacity

The heater does part of the boiler's work. With the same quantity of coal burned a considerable increase of boiler output is assured by heating the feed water, since the latter enters the boiler with a part of its heat supplied. A great evaporation will take place with the same amount of heat transmitted thru the boiler heating surfaces.

Thus, for example, with an initial temperature of 60 degrees and a boiler pressure of 120 lbs., the total heat that must be supplied is 1,163.6 B. t. u. per lb. of water. If, however, the feed water temperature is raised to 210 degrees, which is an increase of 150 degrees, we find that only 1,013.6 B. t. u. per lb. of water is required. This is a difference of 150 B. t. u., which is equivalent to 13 or 14 per cent. increase in capacity of the boiler with the same amount of fuel.

The feed water heater reduces boiler strains and damage to boiler plates. When cold feed water is precipitated into the boiler, sudden violent strains are sure to occur. When the cold water strikes the hot plates, the rivets may become loosened and as the strains are local, the plates and tubes may be directly injured as well as the joints becoming loosened. It is almost axiomatic that good service and long service cannot be had from any boiler supplied with cold feed water. The advantages of relieving boilers of the violent strains caused by the admission of cold water are not measurable by the saving in wear and tear, but are nevertheless very marked.

The Economic Utilization of Steam

Efficient and inefficient engines have one characteristic in common: that is, that neither abstracts any large amount of heat from the steam. This is an important point to remember in connection with the possible use of a feed water heater and is a point directly connected with the

choice of an engine and decision as to whether it shall operate condensing or non-condensing.

The answer depends upon what use can be made of the exhaust steam. Thus, if we can use exhaust steam for heating purposes, for drying materials or in the various plant processes, the steam economy of the engine may not be important, but in preference to installing an expensive and elaborate condensing engine we may find it better economy to put in a low-priced non-condensing engine, using 30 to 40 lbs. of steam per hour and to utilize a part of the exhaust steam for the purpose of pre-heating feed water.

Classification of Heaters

Feed water heaters are generally placed in one of the following classifications:

Open Heaters: In which steam and feed water mingle and the steam in condensing gives up its heat directly to the water.

Closed Heaters: In which the steam and water are in separate chambers and the steam gives up its heat to the water by conduction.

To further classify heaters, they are sometimes separated according to the pressure of the heating steam, as

(a) Vacuum or primary: In this type the pressure is less than atmospheric. These are the heaters using an exhaust of condensing engines and they are always of the closed type.

(b) Atmospheric or secondary: In this type the pressure is atmospheric, or, to be exact, the pressure corresponds to the back pressure on the engines and pumps.

(c) Pressure heaters: In this type the pressure corresponds to that of the boiler. These heaters are used primarily for purifying purposes.

Among well known closed heaters of the atmospheric type are Cochrane, Hoppes, Stillwell, Webster, Elliott and National.

Among well known heaters of the closed type are Wainwright, Wheeler, Otis, National, etc.

Essential Requirements of Open Heaters

The principal objection to the use of the open heater is that the oil in the exhaust steam may reach the boilers, but when the oil separator really takes out the oil a most serious objection is removed. Therefore, the open heater should have an effective oil separator large enough to form a part of the heater and should be so designed as to eliminate all the oil before the exhaust steam enters the heater. It is not commercially practical to remove the oil or emulsion from water, and the filter bed should never be depended upon for this work.

To operate satisfactorily, the oil separator should have port areas of ample size and unrestricted passage. It should be self-cleaning.

The water carrying capacity should be large. In fact, it is what really determines the rating of the open heater. Best results in purifying are assured with a large volume of

water, and when there is an ample supply the fluctuations in demand for boiler feed water will cause no trouble and the boiler feed pumps will run smoothly. There should be at least a 5-minute supply in the feed water heater, altho, of course, local conditions may alter this amount.

The purifying of feed water in an open heater demands that the construction allow an even facility for cleaning. The interior should be accessible without disturbing piping connections, and it should be possible to renew filter material without breaking a single connection.

A Typical Open Heater

The Cochrane is a typical example of an open heater. Exhaust steam enters the heater thru a fluted oil separator, as indicated, and passes out at the top, while the oil drips are automatically drained to waste by the suitable ventilated float. The feed water enters thru an automatic valve and is divided over a series of copper trays, so arranged and constructed that the water is forced to fall in a finely divided stream before reaching the reservoir in the bottom. The steam coming into contact with the water particles, gives up latent heat and condenses. Some of the scale forming element is deposited on the surface of the trays from which it must be removed. The suspended matter is eliminated by a coke filter in the bottom of the chamber and the floating impurities are decanted by a skimmer or overflow weir.

There is very little of special moment which can be said with regard to performance or economy of any particular make of feed water heater, as compared with the others. Any open type feed water heater in which the sizes of openings are properly designed to admit steam and water and to discharge water, and which has a proper arrangement of perforated trays for breaking up the water for close admixture with the steam, will utilize all of the exhaust steam possible, and will increase the temperature of the entering water to a temperature within two to five degrees of the temperature of the steam which is used for heating the water.

Heater Retains Insoluble Solids

There are other possible economies to be obtained from the use of a feed water heater besides that of heating feed water, such, for instance, as the retaining of solids made insoluble at the temperatures of the hot water within the heater rather than to let these solids go into the boilers. There are various constructions on the market for which it is claimed that a large quantity of such solids will be retained in the heater, but the truth of the matter is that the largest part of these solids cannot be retained on the heating trays or in the filter section of any of the so-called standard types of heater. It is necessary to provide a water storage capacity of such volume that the heated water may remain practically motionless for a period of one-half hour to one hour before any real depositing action will be obtained in the feed water heater. Such a construction means a tremendous use of valuable floor space or head room in the power plant for the installation of such a storage compartment, and is usually not considered economical practice except where the water conditions are unusually bad.

Closed Heaters

The essential requirements of closed heaters are as follows:

- 1—That they may be easily and thoroly cleaned.
- 2—To heat the feed water to the boiling point without causing any back pressure.
- 3—That they will not foul with scale if properly taken care of.

4—That they will separate and carry off the water of condensation from waste.

5—That they will extract the oil from the exhaust so that the steam can be used for heating purposes and the condensation from the heat coils be returned to the boilers without injuring them.

6—That they will collect and carry off any scum on the surface of the water.

7—That they shall be so constructed that any individual tube can contract and expand independently of the others.

8—That they be made of the best materials and be thoroly tested before leaving the factory.

In the National closed heater efficiency in heat transmission is secured by the use of a small curved or coiled tube in increased frequency of contact of the particles of water with the wall of the tube. Even distribution of the water to the tubes is secured by the large manifolds or tube chambers into which the ends of the tube coils are expanded. The tube ends are accessible thru their plugged holes on the top of the tube chambers or by the removal of the bolted covers of the tube chambers in the larger heaters.

One of the most common experiences in connection with the operation of closed water heaters is to find them leaking water from the heater, causing bolted flange joints. Upon inquiry in such cases one is invariably informed that the heater has always leaked, the explanation being that it is not always an easy matter to back the flange, which is always a job that must be done on Sunday or at night. In nearly all such cases, it will be found that the leakage is due to the fact that there is no relief valve to take care of the increased water pressure, caused by heat and expansion when the feed water valves closed. It has been found that the pressure of the water when the feed water valves are closed will, at times, reach a pressure of 500 lbs. In such circumstances, the importance of the relief valve can be readily appreciated, and it will be found that the use of such a valve will remedy the cause of closed heater leakage.

Open Versus Closed Heaters

Which shall it be, the open or the closed heater? Each type has its advantages, and heaters of both types are made by a number of concerns, and a careful study of the particular plant conditions for an intelligent choice is necessary. The following parallel comparison brings out a few of the important factors:

Open Heaters	Closed Heaters
<i>EFFICIENCY</i>	
Feed water may be brought to same temperatures as the steam by employment of sufficient exhaust steam.	Feed water will always be two degrees or more lower than the temperature of the steam.
<i>SCALE AND OIL</i>	
Do not affect the heat transmission.	Will lower the heat transmission.
<i>PRESSURE</i>	
Seldom subjected to more than atmospheric pressure.	Water pressure slightly exceeds that in the boiler, as it is customary to place closed heaters on pressure side of the pump.
<i>SAFETY</i>	
Sticking of the back pressure valve may cause the open heater to blow up if provision for relief is not made.	Will safely withstand any pressure likely to occur.

PURIFICATION

Oil in exhaust steam comes No oil comes in contact in contact with feed water with feed water. and must be removed.

REMOVAL OF PRECIPITATE

Scale and other precipitate Scale and precipitate readily removed. moved with difficulty.

LOCATION

Must always be placed before the pump suction on the suction side. May be placed anywhere on the pressure side of the pump.

PUMP

With supply of under suction two pumps are necessary and one must handle hot water. One cold water pump necessary.

A further advantage for the open heater claimed by manufacturers of this type of equipment is that there is a marked saving in water. Thus, in the open heater 6 lbs. of water and 1 lb. of steam combine to make 7 lbs. of feed water, but in the closed heater there is no mingling of the steam and water, consequently 7 lbs. of water and 1 1/6 lbs. of steam are required to produce the result. That is to say, the closed heater uses 14 per cent. more water than the open heater. This point may be important in some plants and of no moment in others.

Saving Effected by Pre-heating Feed Water

Degrees Increase in Temperature of Feed Water	Per Cent. Fuel Saving by Pre-heating Water	
	Boiler Pressure 1 lb.	Boiler Pressure 200 lbs
32 to 212	15.48	14.94
40 to 212	14.79	14.28
50 to 212	14.08	13.60
60 to 212	13.35	12.75
70 to 212	12.60	12.04
80 to 212	11.83	11.31

90 to 212	10.92	10.56
100 to 212	10.12	9.68
110 to 212	9.32	8.92
120 to 212	8.46	8.10
130 to 212	7.60	7.28
140 to 212	6.72	6.44
150 to 212	5.82	5.58
160 to 212	4.90	4.65
170 to 212	3.96	3.76
180 to 212	3.00	2.85
190 to 212	2.02	1.92
200 to 212	1.02	.97



FOREIGN BRICK CAUSE LOSS OF MONEY

Phantom foreign brick, supposed to be selling to contractors in the New York market at half the price of Hudson common brick, helped to pile up a surplus on the Hudson River distribution market recently, says the Dow Building Report of August 19, 1922.

Every avenue of intake for building materials in this market was thoroly combed by The Dow Service to find out who had foreign brick for sale at a price around \$10, delivered, as rumored, and the only basis that could be found for the report was a schooner load of brick from Nova Scotia brought in by the captain of the vessel on speculation for his brother who is a brick manufacturer there.

This man's experience was such as to discourage him from further efforts to bring brick here. After all his expenses had been charged up to his cargo, with fair sailing conditions, he told dealers to whom he offered his cargo that he could not sell the load of 300,000 below the then current price of \$20 a thousand, wholesale, dock, New York.

Some of this brick was finally disposed of at South Brooklyn, however, at a shade below the market. The brick was slightly out of American size, and the speculation represented a loss to him. He had been told he could get \$30 a thousand for his brick here, wholesale.

An Interesting Display of Building Brick Roofing and Paving Slate, and Incidentally of Plans for Landscape Work is Being Constructed in Evanston. The Object is to Boom the Use of the Materials Named in the Present Building Activities in Chicago and Elsewhere.

The Display is Made on a Tri-angular Street Corner, with Sides Nearly 100 Feet Long. The Brick and Also a Part of the Slate Display Are Ranged Around a Little Square House Which Also Serves as Office for the Exhibitor. Several Kinds of Brick



in the Different Colors Are Set Up in Columns, and for Each Column There is a Slate Roof. The Roofs of This Display Were Made First by Nailing the Slate to Wood Bases and Then Propped Up in the Air. Then the Brick Columns Were Built, and the Roofs Lowered to the Top of the Brick Work and Set to a Proper Slope.

The Brick Panels Thus Set on the Ground Superimposed with a Roof, Offer an Excellent Opportunity for the Home Builder to Visualize the Appearance of the Finished Home.

FINE CERAMIC MANUFACTURE



A Department Devoted to Practical Problems in the Manufacture of Higher Grade Ceramic Products such as Whiteware, Including Electrical Porcelain, Floor and Wall Tile, Sanitary Ware, etc., as Well as Stoneware, Terra Cotta, Special Refractories and Other Articles Where High Grade Clays Are Employed in Their Fabrication.

TO STANDARDIZE CHINAWARE

FOR MANY YEARS, purchasing departments of hotels, chain restaurants, clubs and those of large manufacturing plants which maintain large dining rooms for the convenience of their employes have never been able to obtain a standard size line of china or semi-porcelain hotel ware. These buyers could only maintain a standard by constantly using the line of this or that manufacturer.

The time has now come when the Ceramic Department of the United States Bureau of Standards has been asked to solve this problem, long considered by the hotel managers one of the most complex with which they have had to contend.

It was only recently that the Fleet Corporation took the question of a standard specification for hotel ware up with the Bureau of Standards, and soon afterwards the purchasing department of the Childs' restaurants presented a similar problem for the Bureau of Standards to work out.

The Bureau of Standards had hardly laid the request of the Childs' interests on its desk, when a similar request came to it from the Western Electric Co., a concern which operates a large dining service for its employees.

Bleininger and Pence on Committee

Then followed a request from the Bureau of Standards to the United States Potters' Association, with headquarters at East Liverpool, Ohio, for the immediate appointment of a committee, composed of technical men, to confer with the Bureau in an advisory capacity with a view to designing a standard specification for hotel china and semi-porcelain hotel ware.

Such a committee has been appointed by the pottery manufacturers, and is headed by A. V. Bleininger, in charge of the research department of the Homer Laughlin China Co., Newell, W. Va., and F. K. Pence, of the research department of the Knowles, Taylor & Knowles Co., of East Liverpool, Ohio.

The United States Bureau of Standards has made some very severe tests within the last two months with American and imported hotel ware, and the records of the department show that the imported item does not come up to the tests which have been withstood by the American-made ware.

Hotel ware, be it a china or a semi-porcelain body, when used in a hotel or restaurant is subjected to more severe usage than is the dinnerware in the home. Therefore the hotel line must show that rigidity in body and toughness in glaze to withstand constant wear and tear.

Shapes to Be Standardized

It frequently happens that the score of the knife can be observed on a hotel china plate, and when these scores become

too pronounced, the only thing to do is to eliminate that particular piece from service. Chemists and ceramic engineers now being employed by American pottery and china manufacturers are finding a way to eliminate this trouble.

There are many different shapes of service plates used in the hotels and restaurants, and it is now proposed that shapes be standardized. Both the Bureau of Standards and the china and semi-porcelain hotel ware manufacturers concede that thru the creation of a standardization of hotel shapes, bodies and glazes, no hardship will fall upon the shoulders of the manufacturers, but rather they will be spurred on to design a body and glaze that is more rigid and tougher than is now in general use.

It may soon follow that hotels, restaurants and corporations will, when they place their requirements for hotel ware, issue at the same time a list of specifications to be used as a guide in filling that particular order. These specifications will not vary greatly from the method of manufacturing this line today, but they will be a guide to the plant in whose hands the business has been placed.

Now that the Bureau of Standards and the china and semi-porcelain pottery manufacturers of the United States are co-operating to design a standardization of shapes, bodies and glazes, remarkable results are being anticipated.



POTTERS' WAGE AGREEMENT UNSETTLED

Whether or not there will be any interruption in the generalware and china branches of the domestic pottery industry after October 1 next depends entirely upon a referendum vote of the members of the National Brotherhood of Operative Potters which begins with the week of September 4.

At a three day conference between the Labor Committee of the United States Potters' Association and the Conference Committee of the National Brotherhood of Operative Potters, held in the Hotel Statler, Cleveland, O., beginning August 23, the former turned down the demand of the latter for an increase of 17½ per cent. over the present wage scale, which would have brought the wage scale up to the peak of the wartime wage.

Upon refusal of the manufacturers to grant this request, the Brotherhood representatives went into secret conference, and when another joint session was held, a modified demand, one asking for a wage increase of 7½ per cent. was presented. This would be the wage that the manufacturers paid between August 23 and November 3, 1921.

This request, like the original, was refused, the Labor Committee of the Potters' Association advising the Brotherhood representatives that no possible chance existed to advance wages under existing conditions; that merchandise was being sold on a very close margin, and that revision upward of the selling list at this time was out of the question.

Then the committee representing the Brotherhood advised the representatives of the manufacturers that they would be compelled to submit their demand for a 7½ per cent. increase in wages to a referendum vote of the trade, and their future action would be guided by the result of this vote.

The manufacturers made it very plain to the Brotherhood

that there was no desire on their part to reduce wages, and that they would be willing to sign an agreement to continue the existing wage scale for another year, or fiscal term. In turn, the Brotherhood committee declared it was not in a position to continue the existing scale of wage until after the result of the vote on the request for an increase in wages of $7\frac{1}{2}$ per cent. was tallied.

With the wage discussion out of the way, the conference then discussed the 30 other changes in the working agreement, all of which deal with changes in working conditions, such as paying employees at Saturday noon, an eight-hour day, and a half holiday on Saturday. These propositions were turned down.

The result of discussions on other propositions gave the workers some modifications and changes sought, but they are all minor in character.

It will require a two-thirds vote of the members to back up the demand of the Brotherhood Conference Committee and "order" it to stand pat on the request for the $7\frac{1}{2}$ per cent. increase. Should this vote fail to back up the demand, then the national officers of the Brotherhood will enter into an agreement with the Potters' Association to continue the existing agreement for another period, supplemented with changes as were agreed upon at the Cleveland conference.



THE GERMAN PORCELAIN INDUSTRY

By Special Foreign Correspondent

All German porcelain factories sold their production for months ahead at the Leipzig exhibition this spring, so that even the orders received during the time of the Genoa Conference and the bankers' meeting in Paris, when the German mark seemed to attain a certain stability, had no effect on employment in the porcelain industry. In view of the possible stabilization of the German exchange domestic and foreign customers kept aloof at that time. Now with the heavy decline in the mark the works are again crowded with orders which will keep them busy for the present year. The works are unable to meet the demand and some firms are enlarging their plants. Production is retarded thru the irregular and insufficient supply of fuel and kaolin and the plants cannot be operated to the full extent of their capacity. Bohemian coal and Austrian clay have been imported for some time to make up for the deficiency, and British coal has also been used lately to a great extent to keep up production. There are numerous complaints by the trade that the supply of porcelain to the home market is insufficient. The high export surcharge is of course a great inducement to sell abroad. Manufacturers believe that if foreign orders should slacken for some reason, the unabated domestic demand will ensure sufficient employment for some time.

Output Increased In Recent Years

German production has increased during the last few years, and the 92 plants, which were merged into the "Association of German China Ware Manufacturers, Ltd.," of Berlin, had an output in 1920 of 48,151.3 metric tons. During 1920 the supply of coal, lignite and briquettes amounted to 41.30 and 63.7 per cent. of actual requirements; during 1921 the percentage was 48.92, 42.6 and 80.4 per cent. respectively. The shortage was partially made up by using wood. The average number of employees amounted to 13,238 men and 12,242 women wage earners, and 2,283 salaried employees in 1920. Last year the respective figures were 13,929, 13,329 and 2,369. Prices for porcelain have been increased continually. In April, 1920, domestic prices of white porcelain were 15 times basic prices and the cost of every kilo of material amounted to 0.51 mark. The wage for molders and turners came to 0.61 mark per kilo and the baking to 122.30 marks per one cubic meter (about 94 marks per cubic yard). In December, 1921, the respective cost amounted to 2.01 marks, 1.71 marks and 3.20 marks, which increased to 2.54, 1.95 and 3.77 marks in January, 1922. The sale prices of china ware were

30 times basic prices at the beginning of 1922 and have since gone up by about 100 per cent. In pre-war days about 60 per cent. of the German production went abroad, while only 28.4 per cent. was exported in 1920. The United States of America was the best customer of German china prior to the war. In 1912, for instance, 41.9 per cent. of the entire American imports came from Germany. This percentage had decreased to 4 per cent. in 1920 and was 27.1 again in 1921. Japan is the strongest rival of German china in the world market; she supplied for instance 44.48 per cent., Czecho-Slovakia 6.8 and France 12.29 per cent. of the china imports of the United States in 1921. German export increased very little during the six months from October, 1921, to May, 1922.

Porcelain Manufacturers Forming Combines

There is practically no export to Russia yet. It is reported that it is getting its supply from British firms, who have also made trade agreements with the Russians and are financing the erection of a factory there, provided the raw material is imported from Great Britain. It is argued in Berlin that the Germans may be too late, if they do not pay more attention to the Russian chinaware market. The general trend in German industry to form combines is also manifesting itself in the porcelain line. Plans for new mergers are gradually maturing and much greater speed in completing the consolidations may be expected. They will especially affect the firms producing household porcelain. The porcelain factory Fraureuth, A. G., increased its turnover in 1921 by 150 per cent. compared to the previous year. The dividend for 1921 was 35 per cent. and an additional bonus of 25 per cent. was paid. An extension of the plant by 40 per cent. will be completed shortly. The porcelain factory of J. Schachtel, A. G., in Silesia, paid a dividend of 24 per cent. on a capital which has recently been increased from two and a half to six million marks. The firm produces technical and household porcelain. The managers report that the stock of orders would warrant an extension of the plant. On account of the uncertain economic position of Germany they thought it advisable to combine with some other firms before enlarging. The company joined the Strupp concern, which is a combine of a number of porcelain factories. The Porcelain Factories of Kahla and H. Schomburg and Sons, A. G., have made a contract to form an Interessengemeinschaft (joint interests) for 99 years.

Domestic Market Receiving Attention

Kahla is one of the oldest German firms producing china, especially for export; it may need a backing of domestic orders, if export troubles ensue. Schomburg is especially working for the domestic market in technical porcelain and is starting a new department for chinaware at the Schwandorf works. Thru the exchange of scientific and technical experience they expect to reduce their overhead charges and probably the price of their product. Both companies are making porcelain for the electrical industry and have plants at Kahla, Hermsdorf, Freiberg, Zwickau, Margarethenhütte, Rossau, Wiesau, Pirkensee, Schwarzenfeld and Schwandorf. The firm of Schomburg increased its capital from 8 to 25 million marks and Kahla from 20 to 35 million. Kahla paid a dividend of 35 per cent. and Schomburg 40 per cent. The production of porcelain for the electrical industry is entailing large laboratory costs and the consolidation of the porcelain plants of the A. E. G. (General Electrical Co.) and the Actien Gesellschaft Rosenthal, some time ago was, to a certain extent, prompted by the desire to reduce experimental charges. The Volkstedter Porcelain Works A. G. is another concern comprising works in Volkstedt, Unterweissbach and Passau. The firm also acquired the Porcelain and Favence Factory R. Heinz in Neuhaus and the Grand-Ducal Ceramic Manufacture in Darmstadt. The capital of the company is seven and a half million marks, which is being increased by another one million marks to provide funds for the acquisition of the Electro Porcelain Factory of S. Bergmann, Jr., &

Co., in Neuhaus. The profits amounted to 9.15 million marks and a dividend of 24 per cent. is being paid. The export business of the firm is reported to have increased a little lately, but is difficult on account of the foreign competition.



CINCINNATI POTTERY CHANGES HANDS

The Acton Tile & Pottery Co. is a new firm which has taken over the Cin-Nor Pottery Co., 2117-23 Reading Road, Cincinnati, Ohio. They will manufacture a full line of garden pottery, ornamental flower vases and lamps, and faience mantel and floor tile. They are also equipped to make clay specialties of all kinds. The officers, who are most thoroly acquainted with the clay industry, are J. O. Hesselbrock, president; William J. Mahoney, vice-president; A. Mahoney, secretary and treasurer.



ILLINOIS PRODUCES ANOTHER POTTERY

At Morton, Ill., the Morton Pottery Co., has been formed and will manufacture a line of yellow ware. Of the \$50,000 capital stock, close to \$30,000 has been disposed of.



SANITARY POTTERS DISCUSS WAGES

The Sanitary Potters' Association of America opened a three-day business session August 15 at the Stacy-Trent Hotel, Trenton, N. J. Representatives of potteries from various parts of the country were present. The meeting was presided over by A. M. Maddock, president. At the morning's session, the question of reduction of wages of employes in the sanitary potteries was presented to the members, with a view to action upon it before the close of the meeting. Later it was decided that a lower piecework wage scale should be placed into effect in the industry, and at a conference to be held with the National Brotherhood of Operative Potters at Atlantic City on September 12, it is expected to ask for a reduction of about 25 per cent. in the present schedule.



LINCOLN PLANT TO START SOON

The Illinois China Co. is reconstructing its plant at Lincoln, Ill., under the supervision of W. C. Sebring of Sebring, Ohio. It is thought that the plant will be ready to operate soon.



FLOWER POT PLANT IN NORTH CAROLINA

Flower pots and vases will be made at the new plant of the Clinchfield Pottery Co., which is to be built at Marion, N. C. A. W. Hilton, Jr., has been named general manager of the company.



THREE KILN ELECTRICAL PORCELAIN PLANT

W. A. Hines, associated with the Federal Electric Porcelain Co. at Carey, O., and W. M. Pauton, general foreman of the Ravenswood (W. Va.) Porcelain Co., are interested in building an electric porcelain pottery at Point Pleasant, O. A three kiln plant is proposed at a cost of between \$35,000 and \$40,000 and which will employ probably 25 people.



INCREASED DINNERWARE DEMAND APPARENT

Since the adjustment of the coal strike, generalware pottery manufacturers in the Eastern Ohio district already note an increased inquiry for dinnerware, both decorated and plain white. With the ultimate adjustment of the rail strike, manufacturers anticipate a greater inquiry.

With adjustment of these two differences, and finally, but not

least the tariff so adjusted that American workers can be protected, a boom in the generalware business is anticipated, the like of which has not been experienced in many decades. Early indications of just such a situation as this are now appearing on the surface.

Save in one particular instance, there are no idle generalware plants in the Eastern Ohio territory.

There is one phase of the pottery business that bears close watching just at this time, and that is the flood of imported ware that is being placed on the American market. The only protection the pottery manufacturers and workers have in this regard is a tariff that will safeguard the entire industry.

It is something that manufacturers and pottery workers should think about, when it has been proven beyond all doubt that German decorated jugs are being sold by importers in the United States at a price which American pottery manufacturers pay for decorating only.

On top of this comes the flood of Japanese ware, made always at a price far below what American pottery workers receive for making the same item.

Buyers know these facts just as well as the American pottery manufacturers, yet there are some who are continually maintaining that a tariff schedule, such as is proposed in the present Senate bill will harm the country, and, as one Washington correspondent has put it,—“will cause the housewife to pay more for her dinner dishes.” Nothing could be farther from the real facts in the case.

There is a marked tendency among many distributors just now to increase the size of their orders, when compared with specifications placed earlier in the year. There are still a few buyers who are following very conservative lines, but in the majority of instances, distributors want an increased volume of merchandise.

It has been the rule for years that some buyers have held off placing specifications for holiday merchandise until the last minute, only to receive such shipments after the season closed. This year, however, there is a tendency among many manufacturers to suggest to these distributors that unless their wants are anticipated earlier than has been their custom, deliveries cannot be guaranteed, for even now there is from 60 to 90 days business on file in the majority of the offices.



CHICAGO TO MAKE GENERAL CERAMICS

J. T. Martin and others, 332 S. Michigan Avenue, have applied for a charter for the Federal Potteries, Incorporated, to engage in the manufacture of stoneware, insulators, and general ceramic wares. The plant will be located in Chicago and will consist of several units at various locations. Waller Crow, Inc., 327 S. La Salle Street, Chicago, have been retained as engineers in charge of design and all specifications. Equipment will be purchased thru the engineers.



SHIPPERS TO CANADA MUST BE EXPLICIT

Unless shippers' export declarations are made out correctly and completely, the United States customs authorities at points of export refuse to permit express shipments to pass thru to points in Canada. The declarations are required by the United States Government to secure definite information as to what goods are sent from this country to Canada, and also serve to identify shipments returned from the Dominion free of duty. The information required must indicate clearly the nature of the commodity and the actual quantity in the shipment. The value quoted should be the actual cost or selling price, if the goods have already been sold. If shipped on consignment before a sale has been made, the market value at the time of export in the United States port, at point of entry into Canada, should be given.

The Superintendent

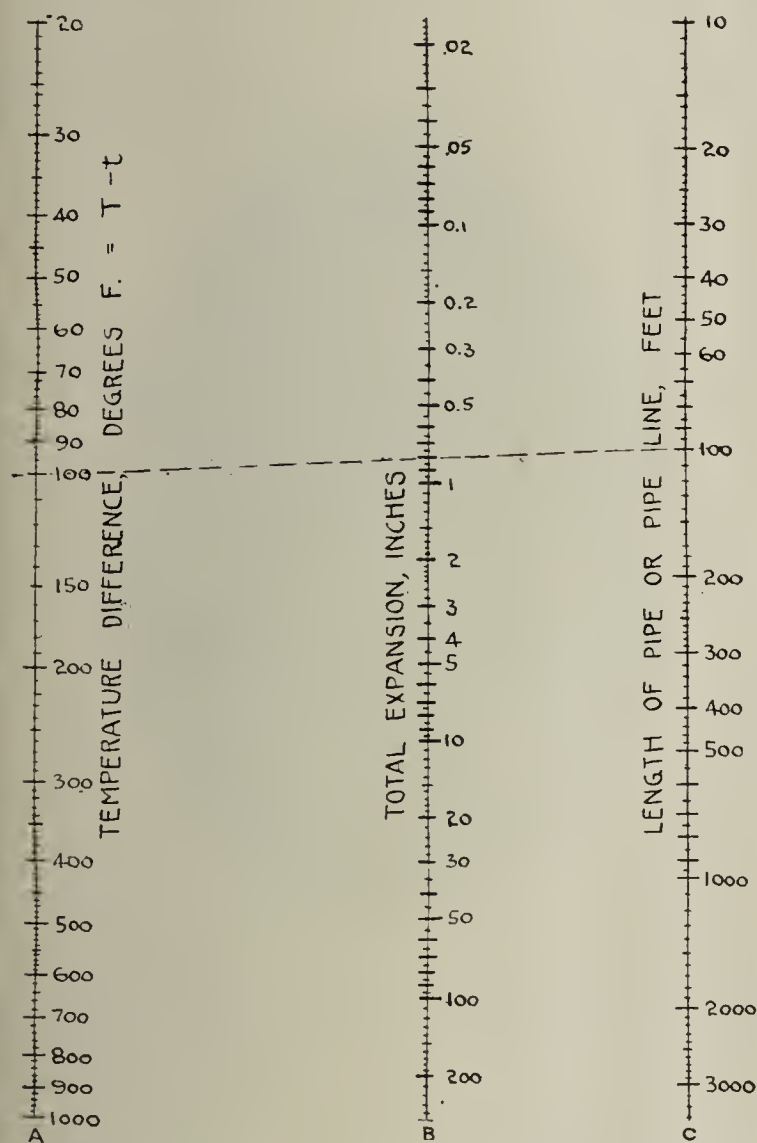
Helpful Hints for Practical Men
Whose Problem is Maximum
Production with Minimum Cost

USEFUL PIPE EXPANSION CHART

Brick plant superintendents will find this chart useful for determining the expansion to be allowed in piping, rods, tubes, etc., for various temperature differences without doing any "longhand figuring" whatsoever.

To use the chart simply lay a straightedge across it once, as indicated by the dotted line and the problem is solved without further ado.

For example, a certain pipe line is installed which is 100-ft. long. It will be subjected to a temperature variation of 100 deg. F. What will be the total expansion in inches?



Connect the 100-deg. temperature difference, column A, with the 100-ft. length, column C. The intersection with column B gives the answer as 0.8 in.

Inversely the chart can be used for determining the allowable temperature difference where a definite amount of space is available for expansion and contraction. Thus, if the length of the pipe is 100 ft. and the allowable expansion is 0.8 in. the same line would show that a tem-

perature difference of 100 deg. F. would be the limiting amount.

Also, if the factor in columns A and B are known, the unknown in column C is immediately found. In other words, if any two of the factors are known the third factor is very quickly found, and without any computing whatever.

It will be noted that the range of the chart is wide enough to take care of almost any expansion or contraction problem that the engineer may have to contend with. The temperature difference, column A, varies all the way from 20 deg. to 1,000 deg. It is very seldom, if ever, that we have as high an amount as 1,000 deg. The length of pipe line, also, is great, varying all the way from 10 ft. to 3,000 ft., or more than a half of a mile. And the total expansion between these limits varies all the way from 0.2 in. to 200 in. It is interesting to note that if we had a pipe line 3,000 ft. long, with a temperature difference of 1,000 deg. the expansion would be over 200 in. —By W. F. Schaphorst.

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BOULDER BLASTING HINTS

A good many men are afraid to blast boulders near buildings. True, rocks do fly when blasted, but the secret of safety is to avoid excessive charges.

Some time ago I broke up a large boulder which was imbedded in the ground about five feet and which was located about 1½ rods from a barn. It measured 6x10x5 feet. The latter dimension was the thickness.

With a spade I dug narrow tunnels; one to enable me to place a charge directly under the center of the stone; the other two about two feet from each end. The center charge consisted of 25 pounds of 40 per cent. dynamite, the end charge 12½ pounds each—50 pounds in all. I placed two electric blasting caps in each charge.

The secret of success in either boulder or stump blasting is tight tamping and good resistance. After placing my charges in the holes, I tamped them very tightly with wet clay, being especially sure to leave no air spaces around the dynamite. Then as the ground was rather dry, I poured water all around the stone, because wet ground offers better resistance than dry soil.

The three charges were connected up together by means of the blasting cap wires and the charge fired with a blasting machine.

The shot broke up the stone so well that all but one piece could be easily handled. That was broken up by a mudcap charge. The stone was all used later in making concrete.

The cost was about \$13 for explosives and \$5 for labor. The work required about eight hours' time of one man.—M. C. Potter, Iowa, in Rock Products.

✻ ✻ ✻

FORD WILL USE OIL

It is reported from Detroit that owing to the shortage of coal, the Ford Motor Company's plant has been equipped with oil burners. The change was made without loss of time of any of the 42,000 employees.



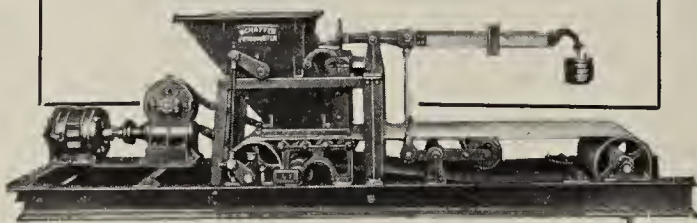
ACCURACY

Predetermination of quality in the mixing and tempering of your clay and 99.75 per cent. accuracy in tempering and weighing soon amounts to real savings for the manufacturer.

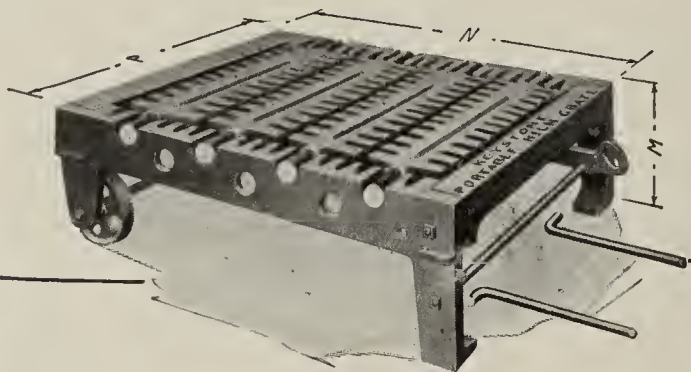
The Poidometer eliminates waste and extra labor, eliminates cracked ware in the dryer, and will weigh your clay at any rate of speed (1½ pounds to 21,000 pounds per minute).

*Let our engineering staff
cooperate with you*

**SCHAFFER ENGINEERING
and EQUIPMENT COMPANY**
2828 Smallman Street Pittsburgh, Pa.



Marion Portable Kiln Grate



This is a portable rocking grate designed for brick, tile and pottery manufacturing kilns. The grate is built of proper length and width to fit the kiln fire box. Keeps the fires open and allows good combustion and easy removal of ash.

When burn has been completed the grate may be removed and placed in another kiln.

Shipped in knocked down condition but may be assembled in ten minutes' time.

Write for latest Bulletin

**MARION MACHINE FOUNDRY
& SUPPLY CO.**

P. O. Box 395

Marion, Ind.

In the Wake of the News

Being Brief Mention of a Host
of Interesting Happenings in the
Varied Fields of Clayworking

PITTSBURGH BRICK MANUFACTURER DEAD

Thomas Mawhinney, well known brick manufacturer of Pittsburgh, Pa., died at his home in that city August 6, aged 84 years. Mr. Mawhinney was born in Pittsburgh and lived there practically his entire life. He served in the Civil War, and was a member of Garfield Post No. 215, G. A. R. A widow, two daughters and a brother survive him.

HARRY S. RENKERT DIES ABROAD

Harry S. Renkert, 47, president of the Metropolitan Paving Brick Co., Canton, Ohio, and identified financially with a number of corporations in that city, died in Geneva, Switzerland, on Sunday, August 20, according to a cablegram received by his brother, O. W. Renkert.

Pernicious anemia, with which he had been ill for the past three years, was the cause of his death.



HARRY S. RENKERT

Mr. Renkert in company with his wife and two children sailed for Europe, February 11, intending to take a Mediterranean cruise. When they reached Nice, Mr. Renkert was taken suddenly ill and was unable to continue on the ship. He was taken to a hospital there and later to Geneva where he had been since that time.

In 1902 Mr. Renkert assisted in organizing the Metropolitan Paving Brick Co., and successively held the offices of secretary, treasurer, general manager, and president.

He was treasurer and director of the Superior Sheet Steel Co., a director of the George D. Harter bank and of the Crystal bank, owner of the Renkert building, and was interested financially in many other concerns in Canton.

Mr. Renkert was one of the first directors of the Canton Chamber of Commerce and was one of its early presidents. He was always active in civic affairs and a leader in all steps towards the city's betterment.

His father, one brother, Oliver W. Renkert, with whom he was associated in the Metropolitan Brick Company, and one sister also survive, besides his wife and three children.

DEATH ENDS ACTIVITIES OF WM. LUCAS

William Lucas, treasurer of the Preble Fuel Co. of Portland, Me., and the first man to introduce the pallet brick system in New England, died recently at his home in Portland, Me. He was a native of Ireland and when he came to America, located at Dover, N. H., where he established a brick company bearing his name. Two years later he established a brick making plant in Portland, Me., and since then his interests have been widespread, including other brick plants in which he became a heavy stockholder, lumber concerns and fuel. He is survived by a widow.

GEO. SHAW TAKEN BY DEATH

Geo. Shaw of Woodinville, Wash., died on July 20 after a long illness. Mr. Shaw was engaged in the brick making business in Woodinville for the past 25 years, having built the plant and operated it continuously thru storms and fair weather, and having earned an exceptional reputation for the quality of his product, fairness in dealing and general business qualifications.

Mr. Shaw left the grocery business to engage in the making of brick and drain tile, having no knowledge of the mysteries of the clayworkers' art whatsoever, but by persistent application and dogged determination built up an industry which would be a credit to any community.

HOOD ON BUSINESS TRIP

B. Mifflin Hood, vice-president of the American Face Brick Association, and president of the B. Mifflin Hood Brick Co., well known manufacturers of Atlanta, spent the latter part of August and the early part of September on a business trip to northern industrial centers.

PIONEER CELEBRATES GOLDEN WEDDING

Mr. and Mrs. James Sandison celebrated their golden wedding recently in Moberly, Mo. Mr. Sandison is one of the pioneer brick manufacturers and contractors of Missouri, as he operated a plant at Moberly from 1880 to 1907.

ACCEPTS POSITION IN INDIA

G. L. Austin has resigned from the superintendency of the Joliet, Ill., plant of the American Refractories Co., and has accepted a position as works manager for the Central Province Portland Cement Co., Ltd., at Kymore, India. Mr. Austin will sail about September 15 for his new location.

O. O. BOWMAN PASSES 84TH BIRTHDAY

O. O. Bowman, treasurer of the J. L. Mott Company, Trenton, N. J., and one of the leading figures in the ceramic industry in this section, celebrated his eighty-fourth birthday on August 23. Mr. Bowman continues in the organization, and is at his desk every day.

A. E. DAVIS TO ADDRESS ROTARY CLUB

Albert E. Davis, Indianapolis representative of the Western Brick Company, is on the program of the Rotary Club of Indianapolis soon to give an address on the various phases of the brick business, with particular reference to the pressed brick situation, its manufacture, demand and the like.

BRINGS HOME AGED EUROPEAN BRICK

Harry Jiencke, owner of the Independence (Kan.) Brick Co., returned from Europe recently, and brought with him



Dryer, Transfer and Clay Cars,
with Flexible Bearings.
Switches, Turntables and Track.

THE CHASE FOUNDRY & MFG. CO.
COLUMBUS, OHIO

CHASE

WOULD YOU LIKE TO
MAKE BETTER
BRICK
?

USE R. & H. PRECIPITATE CARBONATE OF BARIUM TO PREVENT SCUMMING AND THEREBY PRODUCING BRICK THAT ARE RICHER AND DEEPER IN COLOR, CLEANER AND CLEARER IN APPEARANCE.

IF YOU ARE TROUBLED WITH SCUMMING, WRITE US TODAY FOR CIRCULAR.

THE
ROESSLER & HASSLACHER
CHEMICAL CO.,
NEW YORK

CHICAGO
BOSTON
PHILADELPHIA

TRENTON
NEW ORLEANS
PITTSBURGH

KANSAS CITY
CLEVELAND
SAN FRANCISCO

Are You Building a New Plant?

You want it to pay dividends. The size of these dividends depends on the quality of engineering you engage.

If highly technical, combined with common sense methods, everyday practical ability, along with broad commercial ideas, your profits are assured.

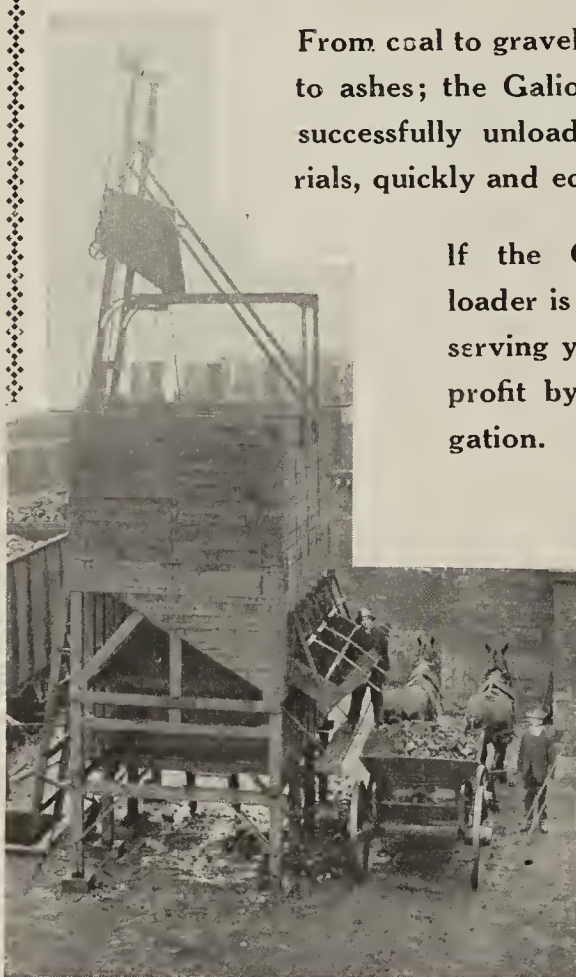
Our service should interest you.



Versatility!

From coal to gravel; from sand to ashes; the Galion Unloader successfully unloads all materials, quickly and economically.

If the Galion Unloader is not already serving you, you can profit by an investigation.



Have you investigated the Galion Unloader? Do so Today!

**The
Galion
Iron Works
& Mfg. Co.
GALION,
OHIO**

a brick made more than 750 years ago. It was used in the construction of a monastery in the Baltic States. The monastery was destroyed after having been occupied for 100 years, but the brick seems to be as good as ever.

WILL BUILD SECOND MISSION TILE PLANT

A five-acre deposit of clay at Reseda, 20 miles from Los Angeles, Cal., has been purchased by R. F. Angulo and his two sons for the establishment of a mission tile plant. R. F. Angulo and sons have been manufacturing mission tile at Santa Barbara heretofore. Their new plant, it is reported, will have a capacity of 2,600 tile a day, and will employ about 30 men.

ANOTHER COMPETITOR FOR CLAY BRICK

It is reported that a new concrete brick has been invented, for which claims are made that it can be sold for about the same price as clay brick, but which will save about 100 brick per thousand customarily required for a rowlock wall. The method of manufacture involves a vibrating process which, it is claimed, eliminates all air and surplus water, and produces a dense concrete said to have been tested up to 30,000 pounds per square inch. Bruce E. Dake, a former service man of Fresno, Cal., is the inventor.

EXPERIENCED MEN TO BUILD AT LOS ANGELES

With a capital of \$200,000 and the purchase of nine acres of ground at Alosta Street and Downey Road, Los Angeles, a new industry in the building trades has been incorporated and capitalized. The company is rushing the building of its plant, so as to be able to compete at the opening of the fall building season.

The Western Clay Products Company is the name of the new corporation, which will start at once to manufacture face and pressed brick, hollow tile, roofing tile and fire brick.

The property, about five hundred feet west of Downey Road, is served with excellent transportation facilities, with both the Union Pacific and Santa Fe railroads closely accessible. The property is underlaid with a high grade of brick and tile clay to a considerable depth, sufficient to maintain the brick and tile plant for a long period.

The men behind the project are W. D. Ball, W. A. Doyle and H. B. McKean, of whom W. A. Doyle is the practical brick maker, and will serve as vice-president and production superintendent. Thirty years ago, Mr. Doyle built the Los Angeles main sewer as contractor, since which time he has built and managed the Renton Clay Works of Seattle, said to be the largest brick and tile plant on the Pacific Coast and has also built the plant of the Ft. Smith (Ark.) Clay Works.

W. D. Ball was formerly president of the Carthage Tissue Paper Mills at Carthage, N. Y. He declares that in the building situation of Los Angeles and Southern California, with its promise of long continued activity, he has found the proper outlet for his energies and employment for his capital.

H. B. McKean, who takes the position of secretary-treasurer and active control of the sales, is a well-known Pacific Coast business man.

The manufacturing plant, work on which is to begin soon, will consist of seven kilns, modern, of the down-draft type, thirty feet diameter, with a capacity of one hundred thousand brick or the equivalent in tile. Machinery with a daily capacity of 75,000 brick and an equal number of tile per day has been bought, and is already on the way. Superintendent Doyle states that it is the intention of the company to have the plant in partial operation by the middle of Sep-

tember, and in complete operation before the first of the year, giving steady employment to about 40 men.

This new plant is located in the new industrial "building zone" created by the central manufacturing district and Union Pacific shop district, which is rapidly becoming a hive of activity.

BRICK COMPANY HEAD HAD LARGE ESTATE

Under the will of the late Senator Frank L. Stiles of New Haven, Conn., head of the I. L. Stiles & Son Brick Co., a large estate is disposed of, estimated at \$500,000. The public bequests include \$20,000 for a public library at North Haven, his native town; to St. John's Episcopal church of the same place, \$5,000. He requests that his stock in the brick company be offered to the Stiles Hart Brick Co. of Berlin, Conn., and to John F. Reynolds, his business associate, at 75 per cent. of the appraised value of the stock.

WILL MAKE CLAY BRICK ALSO

In connection with a new plant for the manufacture of concrete blocks, now being established, the Metropolitan Concrete Block Co., Danbury, Conn., is arranging for a branch works for the production of clay brick. A tract of clay property has been acquired and erection of buildings will be commenced at an early date. The company will install the highest type of brick machinery, providing automatic operation wherever possible, with the idea of manufacturing and selling at the lowest possible figures. A department will also be installed for the production of high grade face brick. Foundations are being laid for a number of modern kilns. Charles Woods, one of the heads of the company, is in charge.

INVESTIGATING FLORIDA CLAYS

Professor Olin G. Bell, of Cornell University, Ithaca, N. Y., in cooperation with officials of the Florida geologist's office, is conducting a series of tests at the university to determine the value of Florida clays for use in manufacturing purposes. There are millions of tons of clay in various parts of Florida that the state geological survey believes to be of a satisfactory quality for the making of brick and other clay products, and the tests are being conducted with a view of bringing about the further expansion of these industries in that state.

TAKES OVER LUDOWICI PLANT

With an authorized capital of \$100,000, one-half of which will be used at the start, the McDonald Brick Co. has been organized and incorporated at Ludowici, Ga. Incorporators are C. J. McDonald, C. W. McDonald and J. L. McDonald. The plant of the Ludowici Celadon Co. has been acquired by the new concern, and will be devoted to the manufacture of common and face brick, tile, etc. Production will be about 100,000 brick per day.

ATLANTA CONCERN OPENS NEW BRANCH

The F. Graham Williams Brick Co., of Atlanta, announces the establishment of a new branch office at Greenville, S. C., in the Bruce Building, to handle the company's trade in that section of the state. Sales and display rooms will be maintained, with the office under the management of J. C. Plowden. The company also has two other branches in the Carolinas, one at Charlotte, in the Arcade Building, in charge of M. C. Thompson; and one at Florence, S. C., in charge of Charles W. Morrison.

NEW DEALERS COVER LARGE TERRITORY

The Keeling-Cassidy Brick Co., Atlanta, is planning to cover the entire southeastern territory, according to G. W. Keeling

DEPENDABILITY

No branch of industry needs greater dependability in oil burners than does the Clay Industry.

Here is another reason why careful Brick Manufacturers in all parts of the country have selected

Smokeless Oil Burners



They are dependable at all stages of the burn. Because of their absolute dependability they cost less in the long run, both in labor and fuel.

Smokeless Oil Burner Co.

BUCYRUS, OHIO

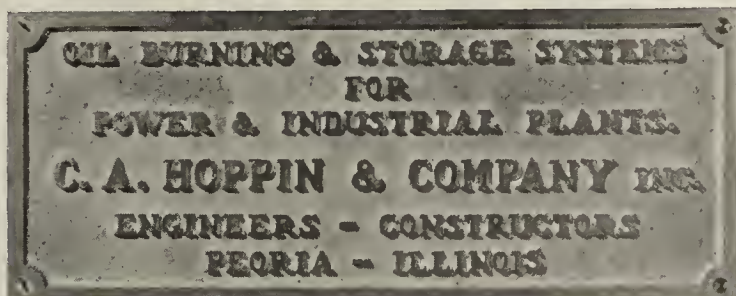
Tanks, Pumps, Meters, Strainers, etc.

Improve Your Product

By installing the Hoppin Oil Burning System you can improve the quality of your product. You can save money on fuel—lessen the burning time and eliminate labor.

Competition today demands the above advantages. Be sure you have them in your plant.

*Ask for complete information today.
No obligation.*



ATLANTA, GA

BALTIMORE, MD.

BOSTON

DETROIT

PITTSBURGH, PA



SAN FRANCISCO

and J. A. Cassidy, who organized the business. This territory will principally comprise the Carolinas, Georgia, Florida, Alabama and Tennessee, the company doing business on both a wholesale and retail basis. The company is specializing in all burned clay products, but principally face brick, common brick and hollow building tile. They are distributors of United States quarry tile, and also for the Denison Interlocking Tile Corporation.

PHILADELPHIA

MORSE Silent Chain Drives are 98.6% efficient for small or large drives. No worry about belt trouble, slippage of power and loss of production where Morse Chain Drives are installed.

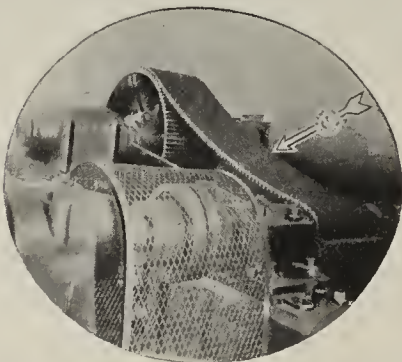
Write us if you have a transmission problem. We give engineering service without any obligation.

Drop a Card to the Nearest Morse Engineer

MORSE CHAIN CO.

Largest Manufacturers of Silent Chains in the World

ITHACA, NEW YORK



MONTREAL

MINNEAPOLIS

NEW YORK CITY

CHARLOTTE, N. C. CHICAGO CLEVELAND KANSAS CITY, MO

ST LOUIS, MO

TORONTO

WINNIPEG, MAN

OUTPUT 45 PER CENT. OF CAPITAL

According to an advertisement published recently by an Atlanta concern and based on information obtained from the Georgia Department of Commerce, the brick and clay products plants in Georgia represent a total invested capital of \$8,938,696.63 while the total value of all brick and clay products manufactured in the state during 1921 was \$3,912,764.59. The present year's production is expected to be considerably in excess of this amount as virtually all of the plants throughout the state are now operating at capacity.

RATE DECISION FAVORS CARRIERS

Freight rates on common brick in carloads collected by the Chicago, Milwaukee & St. Paul Railway from Shermerville to Chicago, and intermediate points, and to Buena Vista Park and Evanston, Ill., and stations between these points, during Federal control, were found not unreasonable by the Interstate Commerce Commission and the complaint of the Illinois Brick Company was dismissed. The Commission asserted that no damage was shown as a result of alleged discrimination and undue prejudice as compared with rates from competing plants at Blue Island, Galewood, Dolton, Weber, and Riverdale, Ill., and other points within the Chicago switching district.

ILLINOIS CLAY AND COAL MINE ABANDONED

The Chicago (Ill.) Fire Brick Co., it is reported, has decided to abandon its clay and coal mine on the Rock Island Railway between Marseilles and Seneca. The company has had considerable labor trouble and other misfortune ever since it purchased the mine, and recently agreed to take the clay output from any lessee who would mine the coal. Negotiations with Lettsome Bros. and the Manufacturers Coal Co. of Ottawa were unsuccessful. The Chicago Fire Brick Co. is keeping water pumped out of the mine while it is standing idle, but there have been some bad falls of rock and a considerable expenditure of money would be needed to place the mines in proper working condition. For this reason it is said the company has thought it best to close it permanently.

INDIANA TO CHANGE BOILER LAW

Notices of vital importance to the trade have been sent out by the boiler inspector of Indiana, who states in the notice that the state needs a new boiler law. Recent inspections, he says, shows the need of changes in the present statutes. He does not state in the notice just what changes he has in mind, but he does say that a committee consisting of two boiler manufacturers, two representatives of boiler insurance companies, two plant engineers, a representative of Purdue University and the state boiler inspector will be named to work out a suitable law.

RAIL SERVICE ASSURED BRAZIL PLANTS

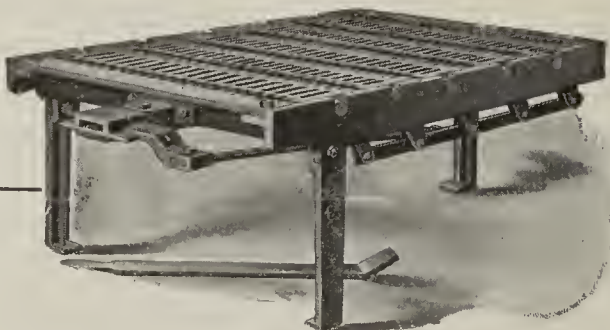
The Indiana public service commission has granted the petition of the C. I. & W. Railroad to purchase a section of the Chicago & Indiana coal road extending north from Brazil, Ind., a distance of 26 miles. In addition to the coal interests, there are a number of large brick and tile plants along the road, which would have been forced to shut down had it been abandoned. The road was abandoned by the Chicago & Eastern Illinois Railroad some time ago. Sale of the part of the road lying north of the section purchased by the C. I. & W. was arranged recently. It will be operated by a syndicate of business men residing along the line.

ELIMINATION OF LOSSES DUE TO KILN GRATE TROUBLES, is the result when CANTON GRATES ARE INSTALLED

Canton Grates will save you about one-fourth on your fuel bills. They will enable your operators to attain and maintain temperatures without excess use of fuel.

It won't cost you to get complete information today and it may mean profit for you. It has to many others.

Write us



The Canton Grate Co.

1709 Dillon Place,

CANTON, O.

KENTUCKY HAS NEW CORPORATION

The Lexington (Ky.) Brick Manufacturing Co., is reported as having been capitalized for \$50,000 by George F. Carey, Ben Myers and James E. McFarland.

ASKS REPARATION FROM RAILROAD

The Louisville Fire Brick Works, of Highland Park, Ky., filed a complaint with the Interstate Commerce Commission on August 19 asking reparation in the sum of \$2,087.92 on rates charged by the Southern Railway on clay shipped by the complainant from Stapleton, Indiana, to Louisville, Ky., during the period of Federal control.

Prior to June 25, 1918, when Federal control went into effect, the Southern charged a rate of 60 cents per ton for this movement, the complainant asserted. Thereafter the carrier increased the rate to \$1.00 per ton instead of 80 cents per ton which it should have been under General Order No. 28, of the Director General of Railroads, it was stated. The complainant set forth that it has been damaged to the extent of 20 cents per ton on 227 carloads of clay shipped.

KENTUCKY FACE BRICK IN DEMAND

The Wickersham brick plant at Mayfield, Ky., owned and controlled by X. B. Wickersham, is having a good pre-autumn activity. The plant is equipped with modern machinery for the manufacture of dry pressed building brick, with efficient designs of down-draft kilns. It has an annual capacity of five million brick. In addition to common building brick, the plant also makes a superior quality of face brick, and their attractiveness is evidenced in many of the new buildings in Old Kentucky and adjacent states. A Memphis, Tenn., firm purchased over 100,000 of these brick to be used in that city during the present year. The factory has a regular shipping territory extending more than 150 miles from Mayfield. Mr. Wickersham has also successfully conducted a general contracting business and during the past 12 years has constructed some of the handsomest buildings in Western Kentucky. X. B. Wickersham is successor there to the Standard Brick Co. His firm is a dealer in lime, cement and sand and distributors at Mayfield of the Johns-Manville roofing.

MARYLAND TO HAVE \$50,000 PLANT

The New Brick and Tile Company, of the Moreland Building at Easton, Md., is having plans prepared for the erection of a one-story plant at a cost of \$50,000, Fletcher Clarke, secretary of the company, has announced. The company will manufacture brick and tile.

CHANGES OFFICE LOCATION

The New England Brick Co. of Boston, Mass., which has had offices for some years at 18 Postoffice Square, has removed its offices to the Unity Building, 185 Devonshire Street, Boston.

COAL SHORTAGE FELT IN MINNESOTA

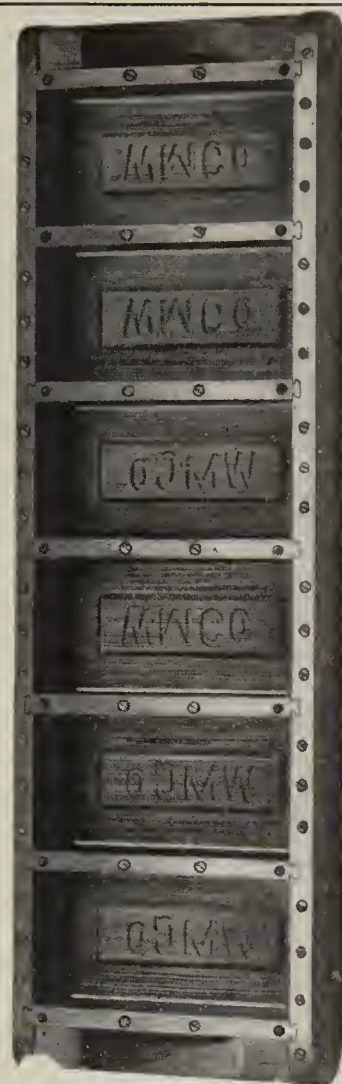
The Fowler & Pay Co., lime and brick manufacturers, with large plants at Austin and Mankato, Minn., was the first industry in that state to close down because of the coal shortage. The company has notified the state fuel administrator that it will not reopen the plant until sufficient coal is received to guarantee continuous operation.

MISSOURIAN LEASES FIRE CLAY MINE

J. W. Gray, of St. James, Mo., has leased a fire clay bank at Zion Hill, and has men at work digging and hauling the material.

DICKEY SILO AWARDED AT FAIR

The W. S. Dickey Clay Manufacturing Co. of Kansas City, Mo., donated a Dickey tile silo as first prize in the cow race



YOU NEED WELLINGTON WARRANTED MOLDS

Furnished in any type or size, with panels, letters, etc. There is no better mold on the market.

Air-dried, carefully selected Cherry and Maple insure satisfaction. 40 years' experience in the soft-mud line and our thorough understanding of the clay operator's requirements guarantee this.

Write for our prices

The
Wellington Machine
Co.
WELLINGTON, OHIO

THWING

HIGH RESISTANCE MULTIPLE RECORD PYROMETERS

THWING PYROMETERS

attached to your kilns will eliminate guesswork and the loss that it causes through improperly burned ware. They will enable your burners to fire intelligently at all times, by giving them a complete record of every burn from the time the fires are lit until the burn is completed.

The progressive clay products manufacturer uses Thwing Pyrometers.

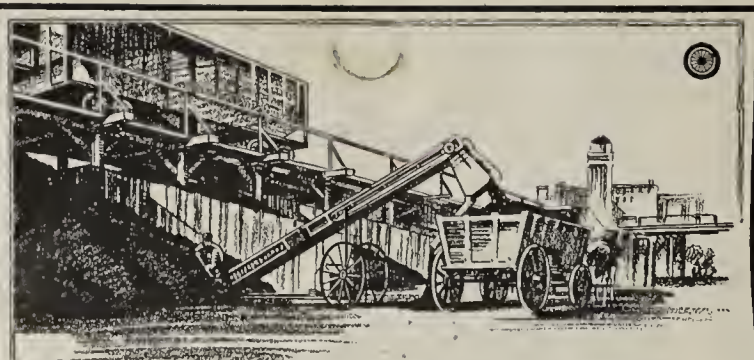
Write for complete information and catalog

THWING INSTRUMENT COMPANY

3347 Lancaster Ave.,

Philadelphia, Pa.





Saves 2 to 10 Men Unloading Cars

ONE man and a Scoop Conveyor can unload a car of gravel, sand, crushed stone, coke or coal in one and one-half hours.

The feed end of the machine is placed next the rail directly underneath the hopper; the hopper is opened and the conveyor carries the material away as fast as it flows through.

No hand labor is required except to break the material down in the car and to clean up the track after the car is unloaded.

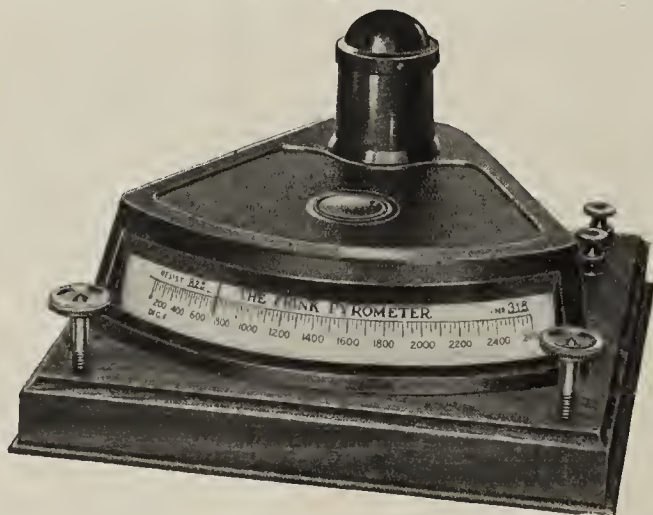
Absolutely portable, the Scoop Conveyor is easily moved about the yard for loading, storing, reclaiming or transferring all kinds of materials.

Write for Catalog No. 94

PORTABLE MACHINERY CO.

Passaic, N. J.

THE SCOOP CONVEYOR



The Reason Why

After long experience and effort we have succeeded in bringing into use an exceptionally sensitive but exceedingly hardy instrument; an instrument free from tedious adjustments and equal to any occasion. The advent of this instrument, together with our maintenance of our guaranteed service, have been responsible for our phenomenal success.

WRITE FOR DETAILS

THE FRINK PYROMETER COMPANY
LANCASTER, OHIO

conducted at the Missouri state fair at Sedalia, August 19-26. The cow showing the best average for the week in butterfat production won the prize.

DRILL FOR COAL AND FIND CLAY

In sinking test holes on coal mining property held by the Central Missouri Coal & Mining Co., in the vicinity of Hi-bernia, Mo., a seven-foot vein of fire clay was found in addition to a large amount of coal.

FIRE DESTROYS ROOF OF KILN SHED

The roof of the kiln shed at the Bill Long brick plant two miles west of Buffalo, Mo., was burned off recently, while 125,000 brick were being burned in the kiln. No damage was done to the ware.

BUILDING TRADES REJECT ARBITRATION

The St. Louis Building Trades Council delegates on August 16 overwhelmingly rejected the Master Builders' Association's proposal that a joint board of arbitration be appointed to settle all labor difficulties. The executive committee of the council had recommended that the plan be considered favorably. Four unions in the council have no agreement with the builders. They are the carpenters, hoisting engineers, steamfitters and sprinkler fitters.

FUEL SHORTAGE CLOSES MOBERLY PLANT

The plant of the Moberly (Mo.) Paving Brick Co. has been shut down and about 75 men have been thrown out of employment. The step was made necessary by the shortage of coal. The company will reopen its plant as soon as it is able to get fuel again. The plant has plenty of brick on hand and it is not expected that the closing will delay the construction of the brick road between Moberly and the Moberly Country Club. No work is being done on the road at present because the contractors can not get sand and gravel.

OWN COAL MINE ENABLES OPERATION

Officials of the Fulton (Mo.) Fire Brick Co. continue to report a very satisfactory business despite the coal and railroad strikes. Employment has been given to a large force of men during the entire period of labor troubles. The company has its own coal mine and is well supplied with fuel, altho for a time it appeared as if the miners would go out on a strike, staging one walkout but coming back in a short time. The trouble was occasioned by the shipment of coal to outside points. This has been amicably settled and a new contract has been entered into between the mine operators of Fulton and the men of the local union. The miners at Fulton do not hold membership in the United Mine Workers' organization.

FUEL SCARCITY NO CONCERN IN ST. LOUIS

Coal strikes and railroad tie-ups thru shopmen disputes no longer worry the officials of the Grand View Fire Clay Mining Co., of St. Louis. Engineers of the company say all the coal the company will need for some time to come is located on its own premises. Its employees are digging the coal and no transportation is required.

Other fire clay and brick companies in St. Louis have been giving serious thought to their future coal supplies and planning on whether or not they can hope for any priority consideration from the Missouri State Fuel Commission. A four-foot vein of coal outcropping in the side of a hill on the south side of the Grand View Co.'s property has solved their fuel problem temporarily. About 15 tons a day are being taken out. It is estimated the deposit contains about 100,000 tons.

DRILL FOR OIL AND GAS—MAY BUILD PLANT

J. F. Harrison, Columbus, Mont., recently visited Minneapolis, where he interested some outside capital in oil and

in the possibilities of making brick from some of the shales near Columbus. It is reported that a brick plant will be an immediate venture if commercial gas is found and shale of the right consistency located.

FIRE CAUSES SMALL LOSS

The plant of the Wilcox Brick Co., Lawrenceville Road, Slackwood, N. J., was damaged slightly by fire on August 21. The prompt action of the local fire department prevented a serious loss at the works.

LABOR SHORTAGE DELAYS CONSTRUCTION

Work on the plant of the American Clay Products Co. at New Hope, N. J., is being delayed by inability to secure sufficient bricklayers to erect the kilns. The management is offering \$1.50 per hour for this work, but have not been able to employ enough men.

FIRE CLAY MARKET BEGINS TO IMPROVE

Judge John R. McFie, receiver for the New Mexico Fire Brick Co., Gallup, N. M., reports that the demand for brick is increasing. Quotations have recently been made on several hundred thousand brick to firms in Arizona. The first quotation on fire clay was made to the United Verde at Clarkdale, Ariz., the first demand of its kind in a long time from that plant. This indicates that the smelters are preparing to resume operations, which will create a greater market for fire clay and brick.

DECREASES CAPITAL \$60,000

A report states that the Rochester (N. Y.) Brick & Tile Manufacturing Co. has decreased its capital from \$84,000 to \$24,000.

INDIANAPOLIS PLANT RECEIVES BIG ORDERS

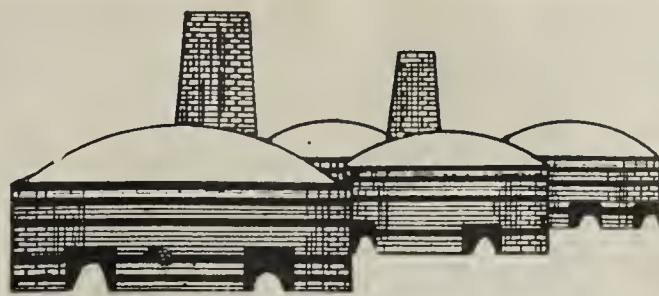
In the opinion of George J. Potts of the C. & G. Potts Co., brick machinery manufacturers, settlement of the rail and coal strikes will be followed by increased orders for brick machinery. Many brick plants are withholding orders for needed machinery pending the end of the strikes. However, the great building activity all over the country necessitates that brick plants maintain production to the limit, and the Potts Co. reports receiving many rush orders for repairs and some new parts. A large order recently received was from the Champlain Brick Co., of Mechanicsville, N. Y., for machinery to equip an entire new plant having a capacity for 100,000 brick daily. The contract calls for two brick machines, two sanders, two large presses, two feeders, two pug-mills, and line shafts, boxing and pulleys.

INVESTIGATING NORTH CAROLINA SHALE

An effort is being made to establish a large brick and tile plant at Colon, near Lexington, N. C. The fine red shale in that vicinity is especially suitable for brick, but it has also been found by tests that a good tile can be made from it. The L. C. Isenhour Co., of Colon, who have been making brick for several years, are interested in the new project, which if present plans materialize will be located on the opposite side of the Seaboard Air Line Railway from their plant.

NEW CORPORATION IN NORTH CAROLINA

The Pine Hall Brick Co. has been organized and incorporated at Pine Hall, N. C., with \$100,000 authorized capital, of which amount \$40,000 has been subscribed by the incorporators Clarence M. Steele, H. O. Steele and A. P. Steele. C. L. Lester, general manager, advises that the company will manufacture shale brick, having purchased 125 acres of clay deposit land and also the plant of the Dan River Brick Co.



Permanence!

Careful selection of material as well as skilled workmanship in Robinson's Kiln Bands makes them decidedly permanent and satisfactory.

Let us quote you on your requirements.

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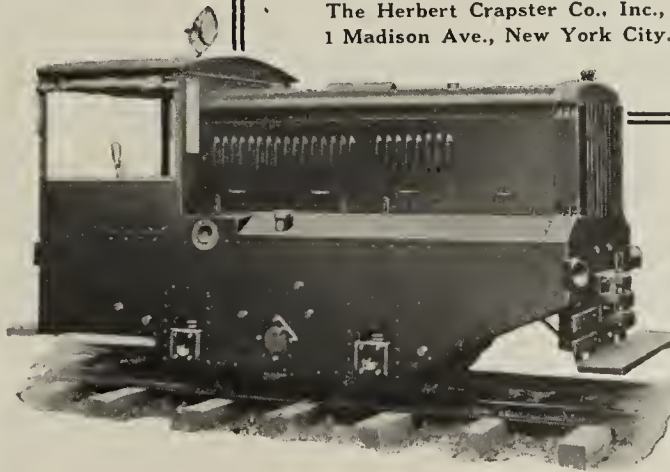
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1 Madison Ave., New York City.**





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**Miner
and
Grinders**

**Especially Prepared
for Brick Making**

DIESEL ENGINES FOR CLAY PLANTS

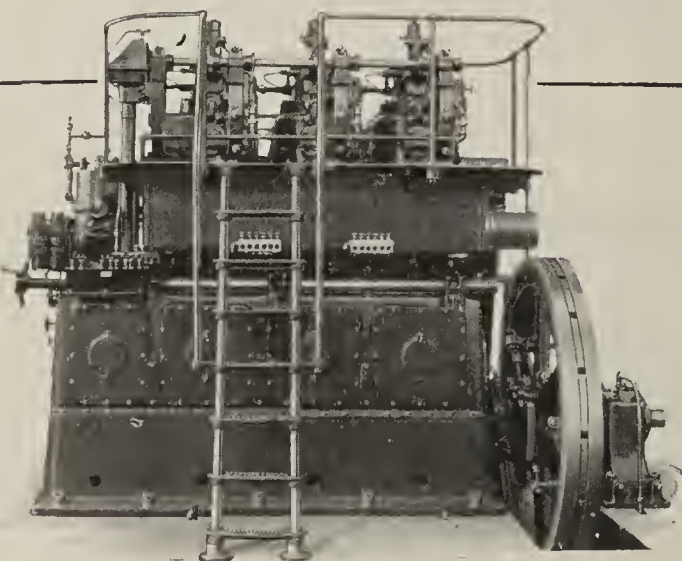
Economical Power—Efficient Operation—Convenient—Conservative—Complete—Easy to care for—Always ready and reliable.

This engine operates on cheap fuel oil. Fuel storage space decreased. A small amount of fuel makes a big amount of power.

Send for new catalog, either vertical or horizontal types furnished.

**THE HADFIELD-PENFIELD STEEL COMPANY
Bucyrus Ohio**

Formerly the American Clay Machy. Co.



FIVE MEN FORM OHIO CORPORATION

The Lima (Ohio) Brick Co. has filed articles of incorporation with the secretary of state at Columbus. The principal stockholders of the concern, which is incorporated for \$25,000, are L. B. Merritt, R. P. Mackenzie, L. C. Claibagh, L. H. Merritt, H. A. Holdridge.

OHIO ADDS ANOTHER

The Bowerston (Ohio) Clay Products Co., has been incorporated with a capital of \$250,000 to mine clay and shale, manufacture all kinds of clay products including brick, sewer pipe, fireplace materials, hollow building tile and similar products. Incorporators are J. C. Lyon, S. B. Boor, G. H. Johnston, J. W. Dunlap and Robert Maxwell.

WILL ERECT LARGE STORAGE

The Franklin Builders' Supply & Coal Co., of Columbus, Ohio, will soon start the erection of a large warehouse, at 400 West Broad Street, for the storage of brick, clay products and building supplies of all kinds. The structure will be three stories high and 60 by 160 feet. The cost will approximate \$100,000.

SHOPE PROCESS WILL ENTER OHIO

The Raeder Sand & Gravel Co., of Canton, Ohio, report that they will erect a plant on Sherrick Road for the manufacture of concrete face and common brick under the Shope process. It is reported that the plant will have a daily capacity of 20,000 common brick or 10,000 face brick, and will be so designed that it can be expanded easily if future demands justify.

AKRON CLAY PLANTS HARD HIT

Owing to the coal strike and the difficulty in securing fuel all brick manufacturing plants at Akron, Ohio, have been forced to curtail operations with the exception of two yards. W. W. Hall, traffic commissioner, Akron Chamber of Commerce, has made efforts to secure fuel for the district, and the two plants noted will be forced to shut down unless relief is provided. In a canvass of the local situation made by Mr. Hall it is found that the brick and clay industries at Akron and vicinity have been harder hit by the coal strike than any more prominent line of production.

MAY INCREASE STATE PLANT

J. E. Clark, in charge of the Ohio brick plant at Junction City, operated by the state, left about the middle of August for Junction City to complete the investigation of the advisability of increasing the capacity of the plant. The investigation has been under way for some time, mostly by instructors and experts from the Ohio State University, who are making a thoro survey of the clay, the efficiency of manufacture and other points. No decision as to the advisability of making the improvements and additions has been made.

INTERLOCKING TILE CREATES INTEREST

The new interlocking radial blocks made by the O. Brumbaugh Silo & Tank Co., of Louisville, Ohio are hollow, with an eight by eight face and four inches thick and are very easily made. These interlocking tile are intended for all classes of radial work that require great strength, such as silos, grain, water and oil tanks, stand pipes, and coal or sand bins. The product has been used in the construction of over 2,000 structures since 1908, and has proven successful. The O. Brumbaugh Silo & Tank Co. will continue to manage the business of Ohio and western Pennsylvania. Starting January 1, 1923, the territory outside of this district is open on the royalty plan, with the assistance of the above company.

ELEVATED INDUSTRIAL RAILWAY PLANNED

The Wellsboro Shale Brick Co., Wellsboro, Pa., is planning on the installation of machinery and operating equipment for a local plant, for which a site has been secured. An elevated industrial railway system will be installed for conveying clay from the mines to the plant. A. Wandroik is in charge.

REOPEN PLANT AFTER SHORT IDLENESS

The West Brick Works, Renovo, Pa., has resumed operations at its plant after a brief curtailment. The present working force will be increased gradually and regular capacity developed.

MUCH BUSINESS FOR PENNSYLVANIA PLANT

So many orders on hand that no quotations can be given at present is the agreeable situation at the Zacharias brick plant, Stroudsburg, Pa.

ORDERS FOR FUTURE CAPACITY PRODUCTION

The Kinzer Brick Co., Ephrata, Pa., has adopted a capacity schedule of operation at its plant, with employment of regular working force. The company is said to have orders on hand to insure production on this basis for some time to come.

AIMING TO CHANGE FREIGHT RATES

South Carolina intrastate rates on brick have been given a hearing for consideration of restoring the old rate as of July 11, 1921, less ten per cent. decrease ordered by the interstate commerce commission on July 1. This rate would increase South Carolina tariff one-half of a cent on every hundred pounds up to 75 miles, and decrease one-half a cent to one cent the tariff on every hundred pounds on hauls longer than 75 miles. South Carolina manufacturers have protested this proposal, which is now under advisement by the railroad commission.

ESTABLISH NEW SOUTH CAROLINA OFFICE

A branch office to handle the company's business in a section of the Carolinas has been established at Greenville, S. C., by the B. Mifflin Hood Brick Co., of Atlanta. Mr. Stuckey is in charge. The company now has offices and branch plants thruout the entire South, with sales and display rooms in all of the important cities of the section.

Production of shingle and mission roofing tile is now in progress at the Mellville, Tenn., plant of this company, and demand has already reached a point that is keeping the plant in steady operation at almost capacity. This tile is of old Spanish design and a comparatively new product with the Hood company. The Mellville plant was formerly used for brick and flooring tile, and the new line is being made in the flooring tile department which has been enlarged for this purpose.

SIOUX FALLS TO SUPPORT NEW PLANT

Articles of incorporation have been filed for the Sioux Falls (S. Dak.) Pressed Brick Co., with a capitalization of \$50,000. Incorporators include Victor E. Olson, Amanda Olson, and George A. Edmunds.

OPEN NEW SALES OFFICE

The Southern Builders Supply Co. has opened an office in Memphis, at 620 Madison Avenue Building, Third and Madison Streets. L. S. King is manager. Samples of face and fancy brick are shown in a good display and the firm will cover Memphis and neighboring territory.

CLAY PRODUCTS POPULAR ON FAIR GROUNDS

Mr. McDowell, Memphis manager of the B. Mifflin Hood Brick Co., reported good August trade, badly impeded deliveries interrupting them at all points, but confidence in improved con-

WESTON LOW DUMP CARS

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LOAD EASILY—

TRAVEL FAST SAFELY—

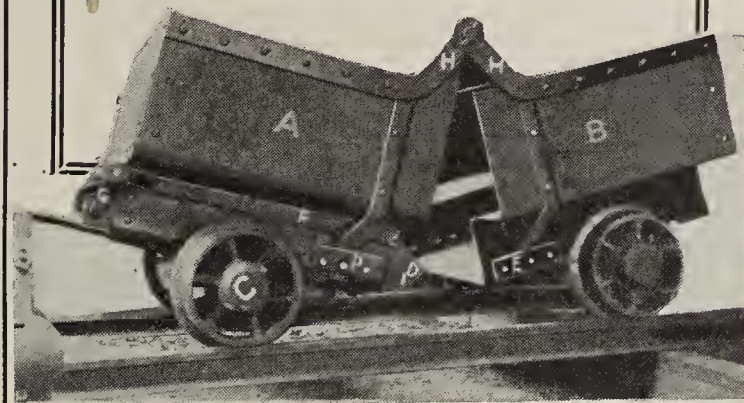
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CONVEYOR BELTING

Every conveyor belt of our manufacture is made to exactly meet the working conditions where it is to be used.

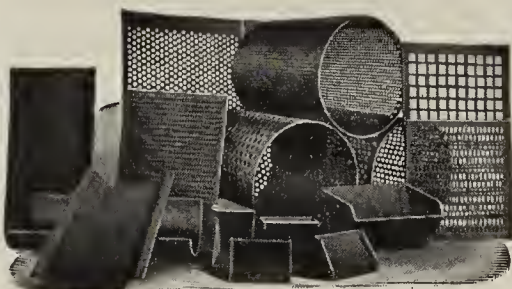
This enables us to furnish a belt correctly made as to number of plies, weight of duck and grade of friction—all important factors in belt making and on which the life of the belt depends.

Let us figure on your next conveyor. The experience of our belt experts may be of assistance to you.

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Mfrs. Mechanical Rubber Goods—Auto Tires and Tubes
PHILA. CHICAGO PITTSBURGH NEW YORK

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CONVEYOR TROUGH and FLIGHTS
STACKS, TANKS,
GENERAL SHEET and
LIGHT STRUCTURAL WORK
LIGHT AND HEAVY STEEL
PLATE CONSTRUCTION**

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Perforated Metal Handbook*

HENDRICK MFG. COMPANY

CARBONDALE, PA.

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HAZLETON, PA., OFFICE: 705 Markle Bank Bldg.

ditions and large activity in the opening autumn months. They are now furnishing the mission roofing tile for the Women's Building at the Tri-State Fair grounds at Memphis. They also furnished the clay products used on the Administration Building and the swimming pool there.

ANOTHER PLANT IN LAND OF DIXIE

A new hollow tile plant is to be erected at Graysville, Tenn., by W. L. and J. E. Reece, who have recently purchased 270 acres of clay land in that locality. The Reece Brothers are located in Chattanooga, Tenn., and have formed the Dixie Coal and Clay Products Co.

FURNISH BRICK FOR FAIR BUILDING

The Memphis (Tenn.) Brick Supply Co., John J. Bishop, manager, 504 Goodwyn Institute, for the last ten days have witnessed some interruption to deliveries by reason of the railroad strike, otherwise demand is good. They are furnishing the common brick for the Agricultural Building just starting at the Tri-State Fair grounds.

OLD CONCERN CHANGES LOCATION

With the completion about September 1 of the new office building of the John A. Denie & Sons Co., they will move from 82 South Front Street, Memphis, where they have been for nearly half a century to the new place at 373 Adams Avenue, near the Southern tracks. The new building will be 60x80 feet, of stone-kote exterior. The firm handles fire brick, tile, roofing, lime, cement, and practically every range of building product. They are now supplying materials for the new Catholic Club, a \$300,000 six-story building well under way at Adams and Third Streets.

BUSINESS HALTED BY STRIKES

The F. R. Thomas Clay Products Co., Third Floor, Central State National Bank, Memphis, which does a wholesale business with dealers, handling car lots, has had a brisk summer trade up until the strike was prolonged, both the railroad and coal strike cutting into business somewhat. They handle terra cotta products, fireproofing, sewer pipe and roofing tile. Mr. Thomas made a trip in August to points in Western Tennessee.

The F. R. Thomas Clay Products Co. aims at 100 per cent. distribution as dealers and in this territory they have been successful in their aims.

TEXAS CITY WANTS BRICK PLANT

The Chamber of Commerce of Robstown, Texas, is entertaining three propositions for the installation of a brick factory as the result of a campaign launched for such an institution. An abundance of fine clay exists in that section, it is declared.

WILL MAKE GAS AT BRICK PLANT

It is said that a subsidiary of the Utah By-Products Co. will be organized shortly to manufacture gas and bituminous by-products. This company contemplates the erection of one of its first units at the plant of the Salt Lake (Utah) Pressed Brick Co., which concern will be supplied with gas manufactured by this company. Among those interested in the Utah By-Products Co. are W. D. Livingston, J. P. Cahoon, Chester Cahoon, J. A. Rockwood and N. J. Hansen.

VERMONT FIRM SHIPS BY WATER

The Drury Brick & Tile Co. of Burlington, Vt., shipped to New York City by water, 600,000 four pound brick, loaded upon two barges, this being the first shipment by water of this commodity. The barges were towed down the lake and thru the canal into the Hudson River and thence to the New York piers.

**The
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Clay Digger**



**One-man operation
Loads right from pit or bank
Costs only while running**

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**Prompt
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Manufacturers also of Buckeye Traction Tile Ditchers

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The combination means real economy to you in cost and in long, faithful service. Get the Caldwell story the next time you are thinking of tanks.

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**TANKS
AND
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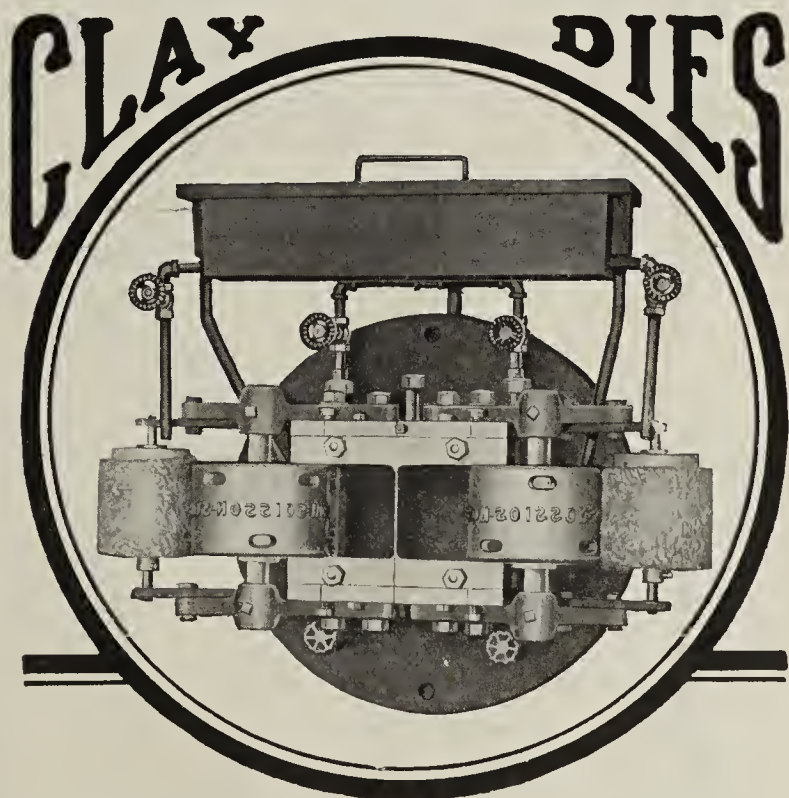


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Electric
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Makes screening and crushing more profitable. Screens any material, wet or dry, from 2½" opening to minus 200 mesh.

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CLEVELAND, OHIO
*Manufacturers of Woven Wire Screens and
Screening Equipment*



Eliminate Repressing

With the Louisville Clay Working Dies you can eliminate repressing and the loss of time and labor which is naturally attached to it.

Ask for Details

Louisville Machine Manufacturing Co.
LOUISVILLE, OHIO



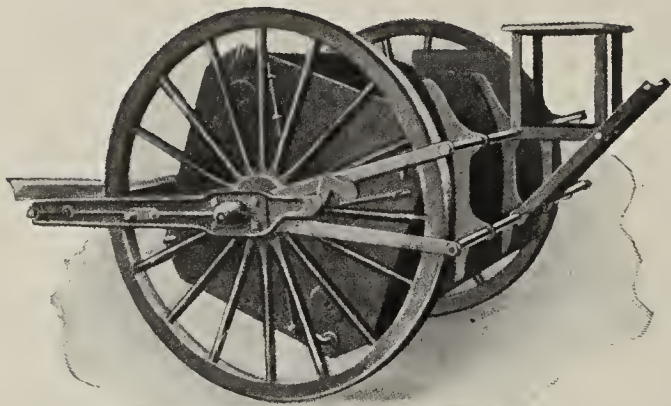
To Gather Surface Clay and Shale —

there is no cheaper or more efficient way than by using The Fernholtz Improved Clay and Shale Gatherer.

Actual tests and testimonials from brick, tile, and pottery plants in nearly every state in the Union verify our claim that with the use of this improved gatherer about **ONE-HALF OF THE COST OF CLAY AND SHALE GATHERING CAN BE SAVED.**

Write for full information regarding this machine

**Fernholtz Brick Machinery Company
St. Louis, Mo.**



VIRGINIA PLANT CHANGES HANDS

The Roanoke Brick Company of Roanoke, Va., which was recently incorporated with a capital of \$100,000, has purchased the plant and equipment of the Roanoke Brick and Tile Corporation and plans extensive improvements on the plant. The factory will have a daily output of 20,000 of all grades of shale face brick.

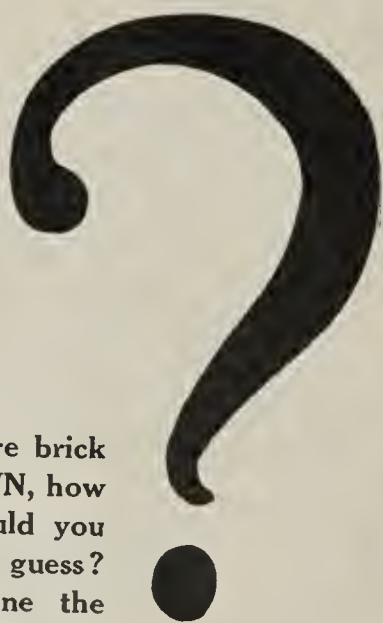
STATE REFORMATORY BRICK PLANT REOPENED

The Washington State Reformatory for Boys is reopening its brick plant which has been closed down for several years. It will make brick and tile for use in carrying out an extensive building program in the way of additional buildings. Drain tile will also be made for drainage purposes on the large school farm. A large and roomy kiln shed has been recently constructed, drying floors rebuilt, and a new clay pit opened up, and all work was done by the boys who happened to be compelled to make their home there.

BUILDING LARGE WISCONSIN PLANT

Officers of the Wisconsin Clay Products Co., a \$100,000 corporation recently established at Kenosha, Wis., have announced that the new plant of the company at that city is nearing completion and that operations will start within a few days. Machinery for the new plant is en route from Galion, Ohio, to equip it completely so that it can start to fill orders that have been received. The plant will produce face and common brick made from clay surrounding the plant. The strata of clay extends to 100 feet beneath the surface. The capacity of the plant is 100,000 brick a day. Officers of the new company are: Joseph Orth, president, Gottlieb Schaeffer, vice president, Michael Lauersen, secretary, Charles Tyson, treasurer.

If



you must order fire brick for a KILN CROWN, how many wedges would you purchase? Why guess? You can determine the amount easily and accurately by turning to page 178 of the 1922 Clay Products Cyclopedia.

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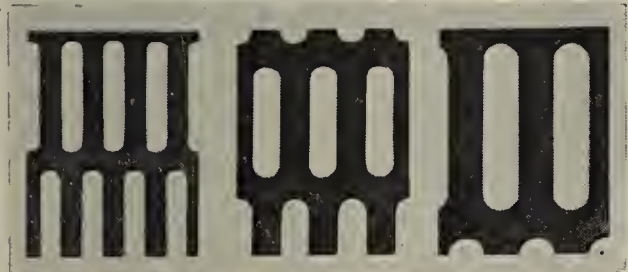
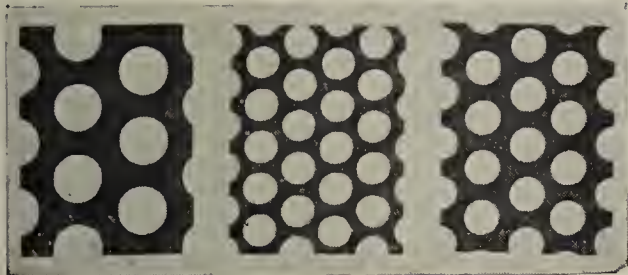
A DIRECT READING RESISTANCE THERMOMETER

Resistance thermometers have certain notable advantages as compared with other temperature measuring devices which make them particularly valuable for many industrial processes. One particular advantage is in the ability to produce a high temperature instrument in which the whole temperature scale may cover a range of 25 deg. F. only. This is very difficult to obtain with a direct reading instrument operating on any other principle.

There are many applications where thruout a process the temperature must be known with extreme accuracy and where the temperature is maintained constantly within close limits. For example, it may be desirable to maintain a temperature of 820 deg. F. and the temperature will never drop below 750 deg. F. or rise above 900 deg. F. A thermo-electric pyrometer would usually be supplied to meet such a requirement with a total range of 0 to 1,000 deg. F. If the scale can have a maximum of 100 or 150 divisions, each graduation on the scale would be equivalent to ten deg. F.

If, however, a direct reading resistance thermometer is used, the scale can be graduated from 750 deg. to 900 deg. F., and each division is then equivalent to one deg., affording much greater accuracy in the readings.

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For Screening Clay, Shale, Sand, Gravel, Stone and Cement

All sizes and shakes of holes in metal of proper thicknesses to give the best screening results.

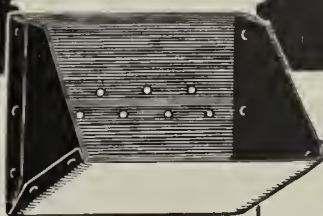
Sheets furnished flat or rolled to shape for revolving screens.

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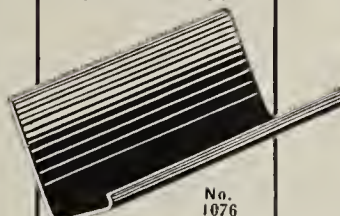


No. 133

Acute heel shelf bucket with beveled end. For handling sand, gravel, stone, coal, etc. Used on both belt and chain elevators.



Square heel shelf bucket for handling clay, etc., that would stick or pack in other types of buckets.



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Open and flat bottom elevator shelf bucket for handling wet clay and similar substances.

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Fig. 325. Jenkins Standard Iron Body Gate Valve, screwed

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SINCE 1864



You Can Save Labor

The One Man Excavator makes possible a saving of from 6 to 12 men in the pit. It digs clay in any weather in sufficient quantities to fill the requirements of any plant of 25M to 100M capacity.

Furnished with wheel traction or caterpillar tread—gasoline or electric power.

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Bay City, Mich.

The Gates Automatic Stoker Should Be On All Your Kilns!

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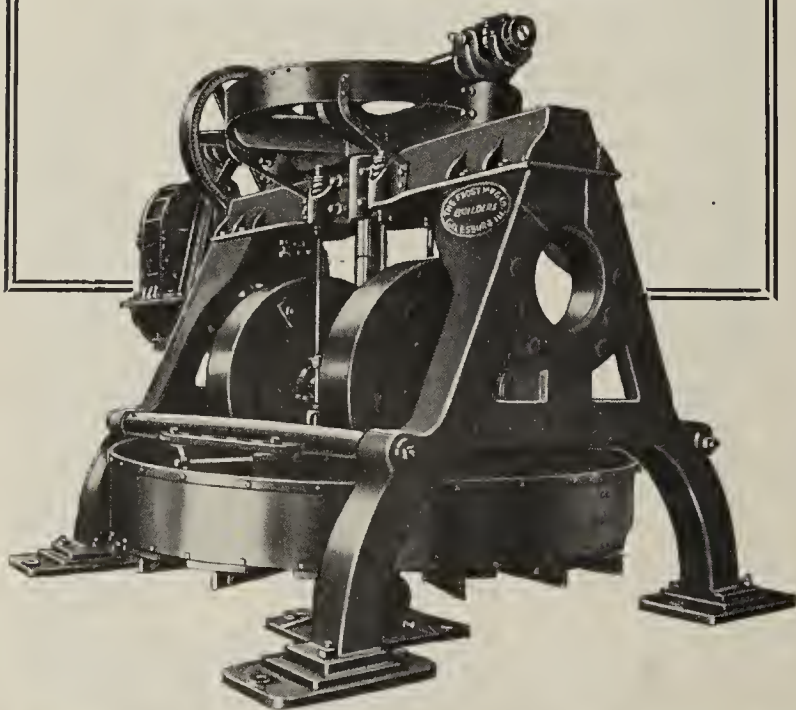
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Three wires lead from the bulb to the instrument. This three wire system eliminates any effect on the indications of the instrument due to changes in temperature along the wiring connecting the bulb to the instrument. The length of wiring is immaterial in the Brown three-wire system and bulbs can be placed up to 1,000 feet distant from the instrument using No. 14 gage copper wire of up to 2,500 feet distant with No. 10 gage copper wire.



The Brown Temperature Humidity Indicator.

A recent development has been the perfection of a direct reading resistance thermometer. For years resistance thermometers have been built on what is known as the zero or



New Direct Reading Resistance Thermometer.

null basis. The Brown direct reading resistance thermometer has a scale graduated directly in temperature degrees as illustrated. To check the instrument for zero reading, the left hand knob is turned to Z, and then to S to check the instrument with a standard resistance at the top graduation on the scale, and in the third position the instrument is operated directly off



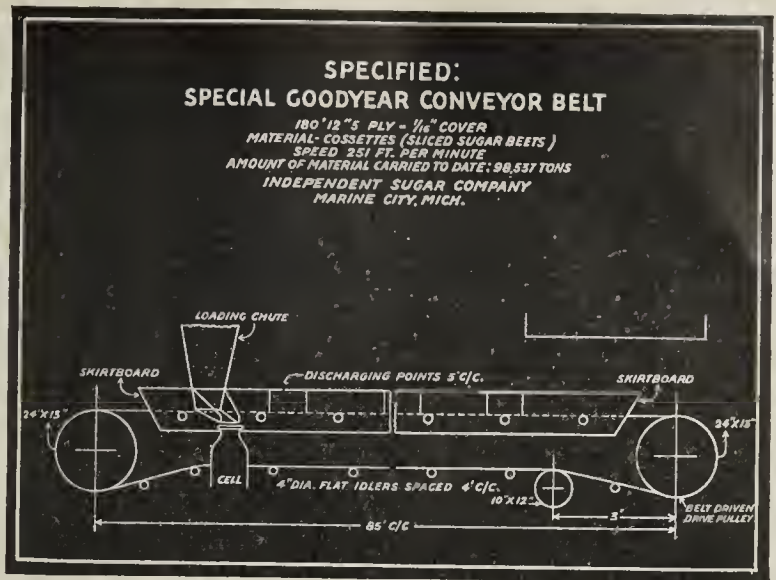
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Clay Plant Construction and Operation.....	4.00
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407 S. Dearborn Street, Chicago, Ill.



Blueprint sketch of G. T. M. specified Goodyear Conveyor Belt in service in the plant of The Independent Sugar Company, Marine City, Michigan

The Sugar-Beet Acids— and the G.T.M.

"This is the belt we were looking for from the day we opened the plant," said the Superintendent of the Independent Sugar Company, Marine City, Michigan. He was referring to the Goodyear Conveyor Belt specified by the G. T. M.—Goodyear Technical Man—after an expert analysis of the Company's service requirements.

"It satisfies us thoroughly," is the final verdict. "It has served through two successful campaigns since October, 1920, is in splendid condition today, and, judging from its appearance, should last five more campaigns. It has withstood the destructive action of beet juices, has been easy to keep clean, and shows little sign of wear. We wish that every sugar man could know how our belt troubles have been so completely solved."

The acids in beet juices make short work of ordinary conveyor belts. The Independent Sugar Company spared no money trying to find belting that would resist these acids and withstand the heavy edge wear developed in this type of conveying. The belting problem was costing them time and money, not only in frequent replacements, but also in frequent interruptions in the work of the entire plant.

When the G. T. M. stepped into the office of the company, late in the summer of 1920, he found a chair and a welcome waiting for him. They had heard of the G. T. M. The G. T. M.'s business was to hear about belt troubles.

Together, they went over every point in the problem. They fitted together the practical knowledge of the Company's officials with their own conditions of service, and the G. T. M.'s expert knowledge of belting. The result was the G. T. M.'s recommendation of a special Goodyear Conveyor Belt, 180 feet long, 12 inches wide, 5-ply in thickness, with 1-16 inch cover.

How it has served efficiently and economically has been told in the plant superintendent's own words. In its first 100-day campaign, it carried 50,647 tons of sliced beets; in the second, 47,890 tons. It is exposed to year-round weather conditions in a variable climate, and in winter carries tons of frozen beets. It has resisted edge wear.

You can rely on the G. T. M.'s analysis and his recommendation of powerful, trouble-free and long-wearing Goodyear Belts. To get in touch with the G. T. M., or for further information about Goodyear Belts, Hose, Packing, and other mechanical goods, write to Goodyear, Akron, Ohio, or Los Angeles, California.

GOODYEAR

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Facts are the basis for determining value

Facts, true facts, can always be proved. Opinions cannot be proved. Facts are like gold of the realm, acceptable anywhere. Opinions are often good, but still they are—opinions.

Your banker wants facts when you apply to him for assistance in financing. Your insurance company wants facts in adjustments of claims. Facts govern the determination of your taxes. Facts are the basis of your plant operation—the fundamental upon which costs are based, prices established, profits made possible.

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The Canadian Appraisal Company, Ltd.,
Montreal Toronto

the temperature bulb. The rheostat is the right hand knob on the instrument for adjusting the voltage. This check of the instrument while recommended daily need only be made every few days even where dry cells are used to operate the instrument, since the current required is infinitesimal, and dry cells last four months without replacement. Where storage batteries are used, a less frequent check is satisfactory.

Thru means of a switch, the instrument can be connected to any number of resistance thermometer bulbs installed in different locations. Where used in dryers the instrument can be used to measure both temperature and humidity, one bulb being subject only to the air temperature, the second bulb being covered by a wick leading into a tank of water. This type of bulb, for measuring humidity, affords a means of instantly reading the difference in temperature of both the wet and dry bulbs and from suitable tables the per cent. of humidity is available. This construction enables the measurement of both temperature and humidity at great distances.

Applications where the Brown direct reading resistance thermometer can be used to advantage are in power plants for many temperature measurements, for the temperature of coal piles to prevent spontaneous combustion and numerous other applications.

This new direct reading resistance thermometer is the product of the Brown Instrument Co., Philadelphia, Pa.

✱ ✱ ✱

THE BUILDING SITUATION

(Continued from page 313)

Building conditions in Philadelphia will be greatly improved due to the organization of the Philadelphia Building Congress, which took place at the Longacre Hotel on August 18. It is dedicated to the task of "placing the construction industry on a high plane of integrity and efficiency and to correlate all efforts toward betterment now being made by existing organizations."

Virtually every branch of the building industry in the city and state was represented at the meeting when the constitution and by-laws were adopted and officers elected. D. Knickerbacker Boyd, nationally known architect, was chosen president; James W. Pearce, Edwin L. Seabrook and Harry C. Woods, vice-presidents; H. J. Baringer, secretary, and Herbert L. Towle, treasurer.

Activity at Baltimore

Industrial work is coming again into its own at Baltimore, Md. With the commencement of plant extensions by the Bethlehem Steel Co., at Sparrows Point, to cost in excess of \$5,000,000, other prominent local industries are coming forward with plans for estimates for factory extensions. The first of October is expected to bring about a strong revival in this class of work, which has been rather dormant thruout the spring and summer.

Brick dwellings, both two and three-story, continue to occupy the larger share of attention at Baltimore, and a number of notable operations are now under way; one of these, that of the E. J. Gallagher Realty Co., will comprise a development of 95 two-story homes, estimated to cost close to \$10,000,000. Weekly building permits are well over the \$500,000 mark.

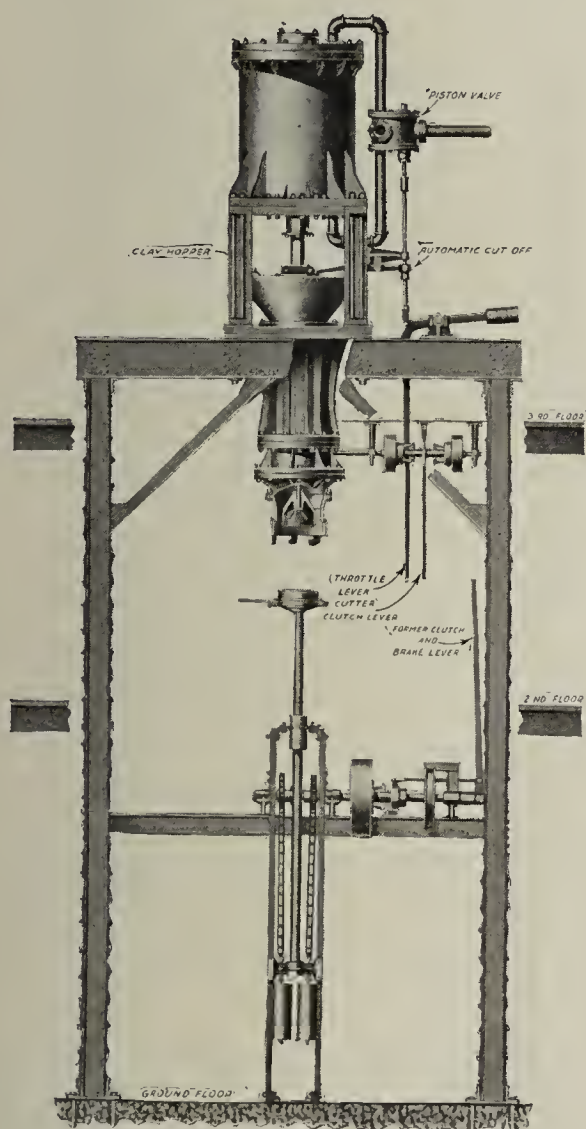
Large Buildings Planned in Louisville

Demand for brick has been excellent, as building operations at the close of August will show about \$12,000,000 in new work undertaken for the eight months. However, some new projects are being sidetracked due to rail and material conditions, as builders do not want to start and then have to hold up work. During the past month plans have been announced for a new Scottish Rite temple to cost about three quarters of a million, and also a new temple for the Kosair Shriners, Louisville,

The Modern Way To Make Sewer Pipe Is With— *The* **TORONTO SEWER PIPE PRESS**

Write for complete information

PAGES  244-245



Toronto Sewer Pipe Press

The Toronto Foundry & Machine Co.
Toronto, Ohio



Drying by machinery is a modern-day essential in the manufacture of any burned clay product.

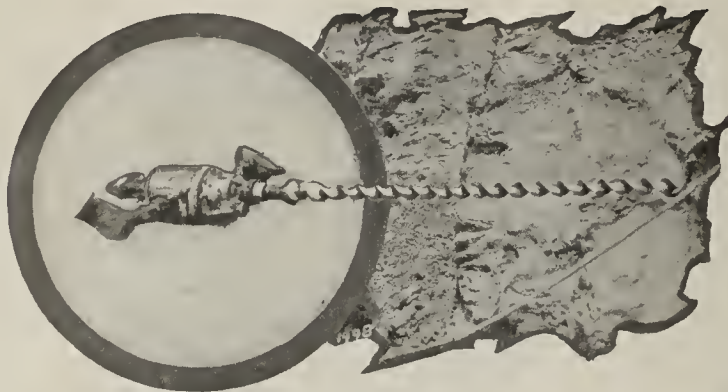
A good drying machine regulates and speeds the flow of ware to the kiln. It works on schedule and gives uniform results, insuring a dependable supply of perfect ware for burning. Furthermore, it saves time, labor, space, steam and loss of ware compared with old dry-rooms and other improvised drying arrangements.

The "Proctor" Dryer is a thoroughly good drying machine—the perfected product of an experienced and reliable organization that has specialized in drying machinery since 1883.

Proving the superior value of "Proctor" Dryers, you will find these machines in the largest and best known plants—drying electrical porcelain, pottery, sanitary ware, refractories, tile and all other Clay Products.

PROCTOR & SCHWARTZ, INC.
PHILADELPHIA, PA.

*See our Exhibit at the
NATIONAL EXPOSITION
CHEMICAL INDUSTRIES
Grand Central Palace, New York
September 11th-16th, 1922*



Hand auger drilling wastes time, labor and money

HAND-AUGER drilling wastes money, time and man-power. A hand auger drills only one shot hole while a Little Giant Electric Coal Drill drills fourteen holes.

Through plastic, semi-plastic and flint clay, the Little Giant Electric Coal Drill illustrated, serving the A. P. Green Fire Brick Company, Mexico, Mo., drilled fourteen four-foot shot holes while one similar hole was drilled the hand-auger way.

Demonstrate the speed and economy of Little Giants in your plant. Available for operation on D. C., or single, two or three-phase A. C. Address nearest Branch for trial drill.

R-19

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LITTLE
Coal



GIANT
Drills

to cost about the same price. Work on these projects will start probably next summer. The Elks plan a fine new building, and there are several other projects on which permits have not been let as yet, which will call for considerable brick and tile, and run into good money.

Considerable road work out in the state has been held up due to inability to secure shipments of sand, gravel, crushed rock, cement, etc., which is curtailing consumption of sewer pipe, even where shipping companies would get cars to make shipments.

Memphis Doubles Last Year

Recent reports of the first six months building activities at Memphis, Tenn., made by Commissioner Horace Johnson, show a valuation of \$7,181,144, as compared with \$3,578,261 for the same period last year. The number of permits was 833 as against 369 for the first six months of 1921.

Building permits at Memphis for the month of July totaled \$2,310,095. This was an increase over June of the present year by \$1,005,455. The July permits bring the total since the first of the year to August 1 up to \$9,491,039. The report for July showed 135 dwellings, 174 apartments of all kinds such as duplex, brick veneer, stucco, hollow tile, etc. There were three public buildings of reinforced concrete. The August reports not yet made public will evidently be high.

A \$50,000 14 room apartment house will be ready for occupancy at Memphis, October 1. The building will be two stories high, 35x200 feet. Considerable brick tile and terra cotta are to be used.

Three new structures are going up on the Tri-State Fair Grounds at Memphis, Tenn., the agricultural building, swine building and new entrance. The swine building will cost \$30,000, the agricultural building, brick and steel will cost \$113,000. The woman's building is estimated at \$80,000 and the entrance at \$26,500.

A contract for one church was recently let for \$80,000 and plans are being made for another church to cost \$35,000 and a hospital to cost \$45,000.

It is said moreover that since the Government has taken over the Methodist Hospital, on Lamar Blvd. Memphis, Tenn., that the Methodists will proceed to erect their new hospital at Union Ave. and Bellevue Blvd. and it will cost about \$600,000 and be of brick construction like the magnificent one they built on Lamar.

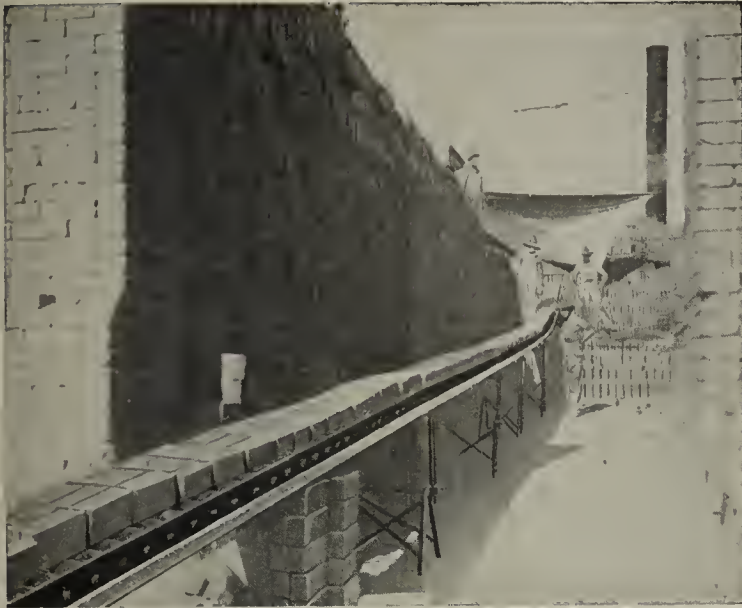
Missouri Adding Public Buildings

Missouri building contracts for July amounted to \$12,503,000, including \$2,877,300 for residential structures; \$2,812,800 for public works and utilities and \$1,463,000 for industrial plants. The figures for the four principal cities were: St. Louis, \$1,985,947; Kansas City, \$1,944,700; Springfield, \$93,400 and St. Joseph, \$155,025.

A survey of the building outlook in Springfield, Mo., indicates that approximately \$4,000,000 in new structures will be under way by next July. These include: Southwest Teachers' College, \$26,000; three junior high schools, \$600,000; Shriners' Mosque, \$300,000; Masonic Hall, \$50,000; Frisco Hospital, \$80,000; addition to Knights of Pythias' Home, \$75,000, and two churches, \$160,000.

Irresponsibles in Los Angeles

The large amount of construction work in Los Angeles has attracted irresponsible contractors who have injured the building industry. Their program is to secure a contract by bidding low, and obtain as large cash and partial payments as possible. After securing several payments, frequently on forged receipts, they quit the job, claiming to be broke, and the owner finds many unpaid bills, in the liens from material dealers, subcontractors and laborers. The final cost is much more than the original bid of a reputable contractor.



The Brickmaker's Friend

It would be a difficult matter to find a more fitting name to apply to Standard Ball-bearing Roller Brick Conveyors.

These sectional, untiring, ever ready conveyors have been tried and never found wanting in times of need.

Unlike the usual portable power driven mechanical contrivances, they never endeavor to shirk a day's or even a portion of a day's work by pleading, "out of order."

Operated by a perpetual power, **GRAVITY**, the sensitive ball-bearing rollers respond instantly and freely to the pressure of the load, and riding friction free, brick and all clay products are transported from car to pile or vice versa.

Our representative in your territory will gladly call and show you how effectively a few sections of these time- and labor-saving conveyors will operate in your yard.

Write Today

STANDARD

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227 Fulton St.

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601 Security Bldg.

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Cleveland, O.
1108 Hippodrome Bldg.

Representatives in all principal cities

"HURRICANE" DRYERS



Drying Electrical Insulators

THIS TUNNEL DRYER was the means by which one large plant, manufacturing high tension electric insulators, cut more than a week from their manufacturing schedule. It now takes but 48 hours to completely and uniformly dry this ware. It previously required from ten days to two weeks.

Shrinkage checks are practically nil, as the drying conditions are always under automatic control. Breakage due to handling is eliminated since the ware is not touched from the time it leaves the green finisher until after it has been dried, and ready to be dipped. The insulators are handled on rubber wheeled trucks, being progressed through the dryer by an automatic pushing apparatus, at regulated speed. Even the heaviest pieces are turned out in excellent shape.

It gives complete satisfaction to know that you have dependable equipment that consistently turns out your ware in fine condition, precisely on schedule. Have You?

You can rely on "Hurricane" Dryers. Let us describe to you the possibilities of these machines at your plant.

Send for complete details, NOW.

The Philadelphia Drying Machinery Co.
3351 Stokley St., Philadelphia, Pa.

Among Our Advertisers

Details Concerning New Models, Changes in Personnel, News Matters, etc., That Our Advertisers Believe Will Interest Our Readers.

PROCTOR & SCHWARTZ EXHIBIT PLANNED FOR CHEMICAL EXPOSITION

The Eighth National Exhibition of Chemical Industries will be held at the Grand Central Palace, New York City, September 11 to 16th, and in connection with it Proctor & Schwartz, Inc., have planned an attractive and practical exhibit. Their products comprise not only drying machinery for ceramics, but also for textiles, chemical products, leather, hair, veneer, soap, pulp board and other industrial materials. Their exhibit will be located at No. 15 Main Floor.

FEATURE OF EXHIBITION

A working demonstration of a new continuous filter and dryer adaptable to practically every filterable material. This equipment has been developed thru the combined efforts of Filtration Engineers Inc., New York, designers and manufacturers of filtration equipment and Proctor & Schwartz, Inc., builders of drying machinery. The machine consists of a "FEinc" Rotary Vacuum Filter, a "FEinc" Filter Cake Compressor and a "Proctor" Continuous Filter Cake dryer, the three units perfectly combined into one completely automatic and continuous process of filtering and drying. Incidentally, the space adjoining that of Proctor & Schwartz, Inc., will be occupied by the exhibit of Filtration Engineers, Inc., enabling interested visitors to take up at the same time and place, the closely related problems of filtering and drying with two experienced reliable organizations, the one specializing in filtration problems and the other specializing in drying problems.

In addition to the above, Proctor & Schwartz, Inc. will have on display a "Proctor" Truck Yarn Dryer and exhibit other types of "Proctor" Dryers for Textile raw stocks, yarns and fabrics, as well as "Proctor" Machines for drying a vast diversity of other industrial materials—the various machines being represented by automatically projected lantern slides, photographs of installations, etc.

REPRESENTATIVES IN ATTENDANCE

The representatives of Proctor & Schwartz, Inc. who will be present to welcome visitors at this exhibit are D. D. Hollenbaugh, Mgr. New York office, W. H. Rihl, J. F. Moranz, G. W. O'Keeffe, E. C. Faber, T. H. Rhoads and W. J. Dudley.

E. B. Ayres, Vice-President and Sales Manager Special Dryer Division, and F. Kershaw, Vice-President and Sales Manager Standard Dryer Division of Proctor & Schwartz, Inc., will also be in frequent attendance.

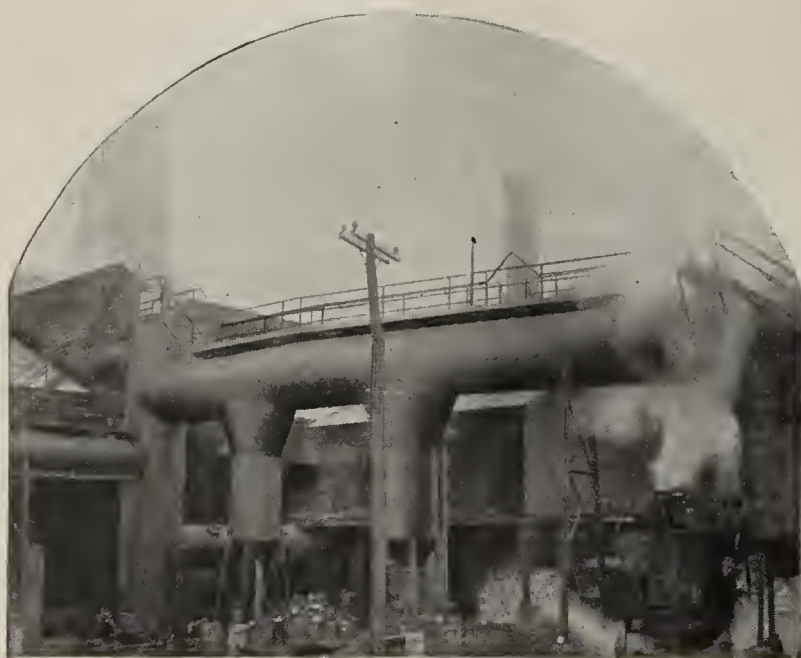


CELITE PRODUCTS LIMITED

Celite Products Limited has been established in Canada to market Sil-O-Cel and Filter-Cel as produced by the Celite Company in the United States. Sil-O-Cel is widely used for the prevention of excessive heat loss from boilers, furnaces, etc., and is a very high efficiency high temperature insulation. It is furnished in brick, block, powder, and cement forms and may be applied to all types of heated equipment without change in design. Filter-Cel is used as an aid in filtering to secure greater clarity and brilliance of filtrate. Its use reduces operating costs by increasing the rate of flow and by enabling the filters to operate in longer cycles. Stocks of these materials will be maintained in Montreal. Mr. Lawrence Russel has been appointed manager with offices in the New Birks Building.



Bulletin C-201 describes the latest and most up-to-date $\frac{3}{4}$ yd. steam shovel manufactured by Bucyrus Company, South Milwaukee, Wis. The manufacturers state, "The 20-B Bullseye machine is not only as near to a perfect shovel as we know how to build, but it is as good a dragline as it is a shovel, and, furthermore, as good a high lift shovel, sewer shovel, clamshell machine, crane, etc., as it is a dragline."



Certainly, It Is Insulated

YOU can't see them, of course, but inside the shell of this big producer gas main is a course of Nonpareil Insulating Brick. They are there to prevent the heavy loss of heat which would otherwise take place from such a large exposed surface. Incidentally, the photograph illustrates the *adaptability* of Nonpareil Brick, that they can be built into such equipment as this.

Wherever heat is used, as in kilns, dryers, boiler settings, etc., the insulation with Nonpareil Brick will save from 60% to 75% of the heat lost by conduction and radiation. Saving heat at that rate obviously means a material increase in operating efficiency. And it usually results in fuel economy of from 3% for boilers to 10% or 15% for kilns, which is an item of no small importance. In kilns, particularly, insulation with Nonpareil Brick permits better temperature control and hence, more even burning and fewer rejects.

In the 72-page Book, "Nonpareil Insulating Brick," you will find details of the insulation of many types of industrial apparatus, specifications and operating records. Write for a copy and a sample brick—no charge.

Armstrong Cork & Insulation Co.

149 Twenty-fourth Street

Pittsburgh, Pa.

Also manufacturers of Nonpareil High Pressure Covering for steam lines, feed water heaters, boilers, etc.; Nonpareil Cork Covering for drinking water systems, brine and ammonia lines, and cold pipes and tanks generally; Nonpareil Corkboard Insulation for cold storage rooms; Nonpareil Cork Machinery Isolation for noisy machines, and Linotile and Armstrong's Cork Tile for floors in offices, residences, etc.

Nonpareil Insulating Brick

For Kilns, Boilers, Etc.

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Leading Clay Journal of the World.

BRICK *and* CLAY RECORD

Established 1892. Now in its thirtieth year.

Entered as Second Class Matter January 2, 1911, at the Post Office,
at Chicago, Ill., Under the Act of March 3, 1879.

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Member of Associated Business Papers, Inc.

Member of Audit Bureau of Circulations.

Subscriptions: One Year (26 Numbers), United States, \$3.00; Foreign, \$4.00;
Single Copies, 25 Cents.

Published Every Other Tuesday by

INDUSTRIAL PUBLICATIONS, Inc., 407 S. Dearborn St., Chicago.

Telephone Harrison 9462

NEW YORK

CLEVELAND

KANSAS CITY

Chicago, September 19, 1922

Vol. 61, No. 6

Beginning a Big Campaign for Plant Betterment

Practical Ideas Gathered from the Field

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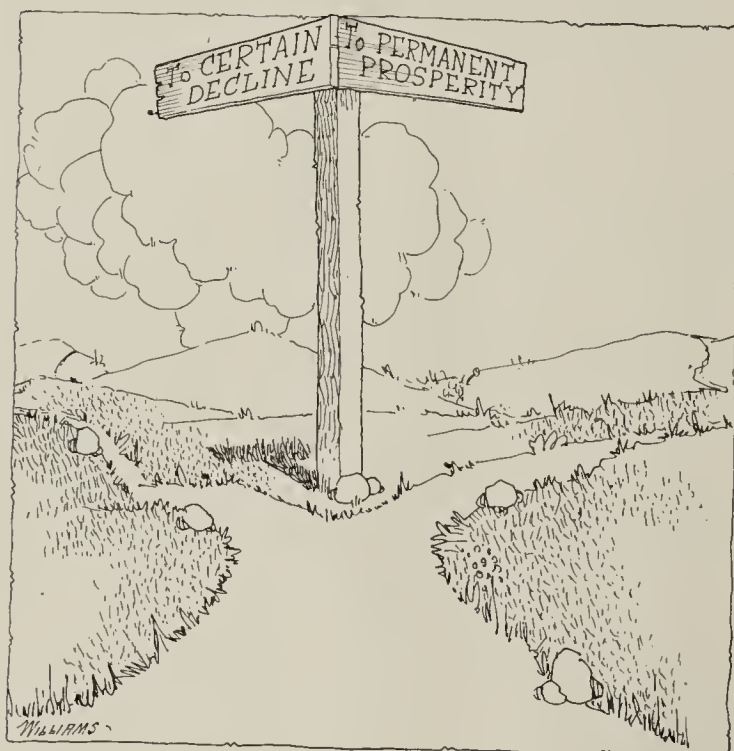
At the Fork in the Road

A Message to the Clay Industry
—Pay No Dividends in 1922—

For several months the clay products industry has been rushing along the highway of prosperity—with the cut-out wide open—the accelerator pushed down to the limit. And it has been a deserved "joy ride," for the industry had previously gone thru several years of rough riding with very little to be joyful about at the end of each year's journey.

But as the present season draws to a close it is well to stop awhile, here at the "fork in the road," to look over the "machine," and to consider carefully which way to turn. Far more than you imagine depends on your action and decision at this time.

Keeping busy does not necessarily imply that one is making progress. And without progress there is stagnation and ruin. A trait common to most people is to be wasteful or negligent in times of plenty, and to be unduly close in dull times. The average American is an extremist, and he is also prone to accept a condition of the day as one that will never change. Foresight is needed to take care of the future, and to be satisfied with present earnings, without preparation for darker days that must come, is to invite dis-



aster. In the wake of time, fresh developments mark the world's progress. What is new today is old tomorrow.

Man Capacity Increased

This is aptly illustrated by facts taken from the iron and steel industry. According to Ethelbert Stewart, Commissioner of Labor Statistics, Department of Labor, the production of pig iron per man per year

at blast furnaces in the United States increased from 26 tons in 1850 to 811 in 1919. While some of this increase may be attributed to the increased efficiency of labor, by far the greater part of it is due to improved furnaces, equipment and methods.

Plant betterment has been the cry not only in the metal industry, but in the manufacture of cement, lime, fertilizer, textiles, and many other commodities. With the constantly decreasing supply of timber, it has been necessary to apply new methods of manufacture to keep the selling price of finished lumber within a circle that would permit of continued operations.

Keep On Moving

It is true that there has been some progress in the clay products industry, too. We no longer see a horse attached to a beam turning a wheel to pug the clay—and many of the other antiquated methods have gone into the discard. Much advancement has been made in burning, drying and machine methods. But when you stop to think of it, our strictly modern clay plants, on which production is had at a minimum of manufacturing cost, are all too few. They are still the exception rather than the rule, and even when some manufacturer has spent his money in the adoption of some method that was revolutionary, there has been much scoffing, and predictions of ultimate failure.

Happily, however, this condition is changing, and there is a constantly growing tendency to examine into the accomplishments of the pioneers of progress, and a tendency to apply the new methods to clayworking plants more generally. Readers of Brick and Clay Record still have fresh in their minds the story published last December describing the remodeled Bradford Brick & Tile Co. plant where a half million dollars was spent with the result that brick are produced for seven dollars per thousand less. Other articles have told of methods that have been adopted with similar results in other clay centers from the Atlantic to the Pacific.

The Big Question

And now—the editors of Brick and Clay Record feel the time has come when this entire industry must needs rise up and push itself forward as it never has before. Burned clay ware of all kinds has earned an enviable reputation because of its beauty, utility, and everlasting quality. The associations' publicity work is having the desired effect—creating a greater interest on the part of the public. But mark this well—there is much abnormality in today's demand and the time is coming soon when the entire construction in-

dustry will be on a more normal basis when it will be necessary to "sell" again. And when that time comes you will be confronted with the progress made by competing products, and unless you **prepare yourselves now** to meet that competition on an equal basis, all the publicity in the world will not save you. To illustrate, we know of concrete brick plants under construction at the present time whose capacity will exceed 200,000 daily capacity; and the manufacturing cost will be ridiculously low.

What, then, is the biggest question confronting this industry today as it relates to future progress? It is **SELLING PRICE**. And there is only **one way** to bring about a lower selling price: by **reducing manufacturing costs**. Which, in turn, can be accomplished only thru the adoption of those methods that have proven, in isolated cases, feasible and practical. The pioneers have blazed the trail, and now must come the rank and file to make the work of the pioneers permanent and of greatest benefit to the entire industry. No industry can survive on the glories of a reflected past. **There must be eternal vigilance.**

Plant Betterment

The foregoing thoughts have not come to us just now. We sensed this long ago and for several months we have studied the situation from every angle—we have consulted leaders in the industry—we have spent several thousand dollars in the traveling of our editorial and engineering force, covering hundreds of plants from the Atlantic to the Pacific, and from Canada to the Gulf.

We tell you this so you may know that what we are going to suggest to you is not the product of any theory, but rather of a broad, practical observation based on the practical accomplishments of scores of clay plant managers. So—beginning in this issue and continuing every issue for several months, we will conduct what we will call the Clay Products Plant Betterment Campaign. It will be one of the most practical things any publication in any industry has ever done.

Increased Serviceability

Benjamin Franklin once said, "Little leaks will sink a big ship," and too many little "leaks" on a clay plant can make big costs. That's why in this Plant Betterment Campaign we will describe hundreds of devices, equipment, apparatus, and little kinks of manufacturing designed principally to stop the little leaks in the plant. This matter will cover every type of plant—stiff mud, soft mud, dry press, and will treat of practically every kind of burned clay ware. You will find interesting and valuable ideas covering every phase of manufacturing—from the pit to the railroad car or truck—how scores of manufacturers in different clayworking centers have applied new methods to reduce the cost of clay winning, clay haul-

ing, grinding, mixing, pugging, molding, drying, setting, burning—in fact, every conceivable operation.

By following this campaign you will learn how you can get more efficient service from your grinding equipment, your brick machine, your kilns and dryers, and without necessarily throwing the old equipment into the discard. As a whole, this will give you a digest of the best methods in use in America.

Pay No Dividends!

And now—here at the "fork in the road"—we urge every clay plant executive to consider well a suggestion that our study of the situation forces us to make. Briefly, it is this: **PAY NO DIVIDENDS IN 1922!** At least, until you have had a careful analysis made of conditions on your plant, and have set aside a surplus that will enable you to do those things that will help you to join in the industry's necessary efforts to cut manufacturing costs. This is, as we see it, the **only way** to preserve prosperity to the industry. It is the only way to meet the future competition of other building products—the only way to insure a satisfactory and continuous demand for burned clay products. We realize that our suggestion will come as a bomb to many clayworking centers. Stockholders will "raise a howl." It will take courage for an executive to take this stand, but remember that "It's as easy for the strong to be strong as for the weak to be weak." **Courage and Preparation** now will enhance the value of every share of stock, for the continuation of dividends depends on what is done on the

Whoever admits that he is too busy to improve his methods, has acknowledged himself to be at the end of his rope. And that is always the saddest predicament which any one can get into.

For there is a vast difference between *being busy* and *making progress*. When we see that clearly, we have gained an important bit of wisdom.

All of us *wish* to improve—for therein lies the greatest pleasure of honest work.

All of us *can* improve—for around all about us are many things on which we may start right now.—*J. Ogden Armour.*

individual plant to keep step with the progress of all commercial activities.

So—we invite every reader of Brick and Clay Record to join us in this **PLANT BETTERMENT CAMPAIGN**. It will mean reduced costs and ultimate increased profits—a better basis for a new business era.



Put all your eggs in one basket and watch the basket.

Remember, every business can be made successful if it supplies some essential want of the community.—Carnegie.



A great deal, perhaps most of the complexity that sometimes seems to attach to business affairs, arises from not understanding what is really going on.—Schwab.

An Excellent Design for Kiln Dampers Produces Saving

Good Dampers Aid Considerably in the Regulation of Burning and Cooling Kilns

Equipment that has a very important bearing on the successful operation of kilns to secure satisfactory burns is the damper. Many burners, if they operated dampers more accurately, would secure better burns in their kilns than are now obtainable.

It is not always the burners' fault, however, that he does



Arrangement for Regulating Height of Damper. The Size of the Opening in the Flue Can be Seen at a Glance.

not operate the damper correctly, since on the average plant the kiln damper is a very neglected auxiliary of the kiln.

The burner seldom has any means of regulating his damper accurately or of knowing how large the flue opening is, so as to accurately control the water-smoking, oxidation, heating up, vitrification and cooling periods of the kiln. Moreover, flashed brick thru oxidation and reduction are largely a matter of guesswork because of inaccurate dampers. Time and money could be saved if this feature of the kiln were given greater study and attention.

The Veedersburg (Ind.) Paver Brick Co. has devised a damper which is one of the most practical dampers ever seen on a brick plant. Iron rods in the form of a triangle are securely bolted to the kiln stack, and a wooden block

drilled with holes one inch apart securely held in place bisecting the vertical angle of the triangle.

The damper is connected to a half-inch iron rod, the upper end of which is bent at right angles and fits into the various holes in the wooden block horizontally.

Thus, it is possible by the use of this equipment to regulate accurately the height of the damper and the area of the flue opening formed and controlled by the damper.

The apparatus is very inexpensive and simple to construct, and if applied in the industry would serve much to improve burning conditions. The several stages of burning can be regulated with the utmost efficiency by proper regulation.

Homemade Traveling Crane Over Dry Pans Is Handy

Crane Made of Scrap Materials Operated by Chain Hoist Costs Only \$100 to Make

A clever idea for use at plants where the dry pans are arranged in a row side by side is that being used by the Sun Brick Co. of Toronto.

The superintendent at this plant built out of scrap materials a traveling crane which runs over the dry pans, and with which it is possible to lift any part of them, mullers,



This Crane Operates Over Four Dry Pans and Covers an Area 25x50 Feet.

gcars, screen plates, and so forth, for repairs or replacements. As the illustration shows, the crane is a very simple arrangement, and consists essentially of two beams, 8x8 inches, about

University of Illinois
Urbana, IL 61801

countershaft from where the power is transmitted to the generator. This installation costs practically nothing, except for the cost of the generator, which was a secondhand piece of equipment. The cost of operating is also no item on the monthly coal bill, and it is safe to say that it is negligible.

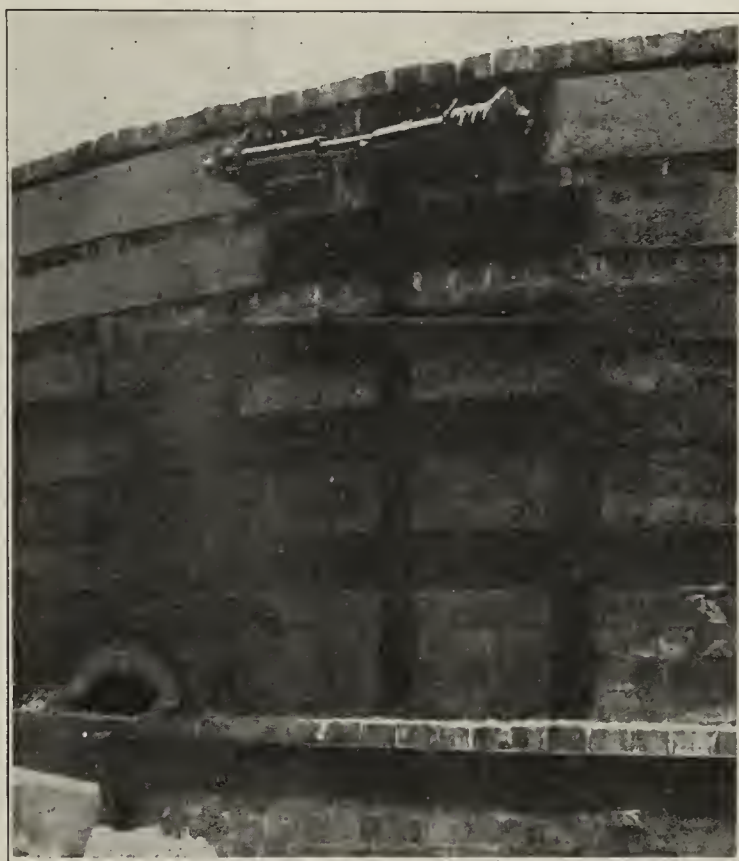
Car Spring on Upper Kiln Band Takes Up Expansion and Contraction

The lifting device is an ordinary chain hoist of the kind commonly used in machine shops. It operates over four dry pans, and makes the removal and replacement of any part an exceedingly simple matter.

All the materials for this traveling crane were picked up on the plant, and were salvaged mostly from scrapped or unused equipment. Its cost was about \$100, including the cost of the chain hoist. One excellent feature of this equipment is that the chain hoist can be detached very easily and used for other work about the plant.

Runs Generator from Fan
Shaft—No Extra Power Used

Generating sufficient power to equip an entire plant with an electric lighting system, as well as furnishing light and power for the home of one of the officers nearby, without



Installation of Strong Spring on Top Band of Kiln to Take Up Expansion and Contraction of Crown.

temperature, and the resulting expansion and contraction weakens the kiln considerably.

Kiln bands aid considerably in reinforcing the kiln, and that band at the top of the kiln which bolsters the kiln wall against the crown thrust is subjected to the most severe action.

It is this band which snaps most frequently, and when it does the crown may be damaged beyond repair. Any ware in the kiln may also be a total loss.

The Veedersburg (Ind.) Paver Brick Co. have a unique idea for eliminating this difficulty. They use a car spring off of a 100-ton capacity freight car to take up the expansion and contraction of the band.

The idea is **very plainly** shown in an accompanying photograph, and the idea is very simple and of wide application. The Veedersburg Paver Brick Co. are pleased to offer this suggestion to the industry as a worth while kink which reduced one of the many problems that occur daily on the plant.

cost, is what Charles Barber, superintendent of the Ellicott Brick Co., Buffalo, N. Y., accomplished. This company uses steam to furnish the power for the operation of the plant. They operate a continuous tunnel kiln which is supplied with draft by a large fan driven by a steam engine. Mr. Barber conceived the idea of running a countershaft from the fan, and from the countershaft runs a belt to a generator. A pulley is placed on the fan shaft, and this pulley operates the

PLANT BETTERMENT

Combining Excavator and Driller in One Machine

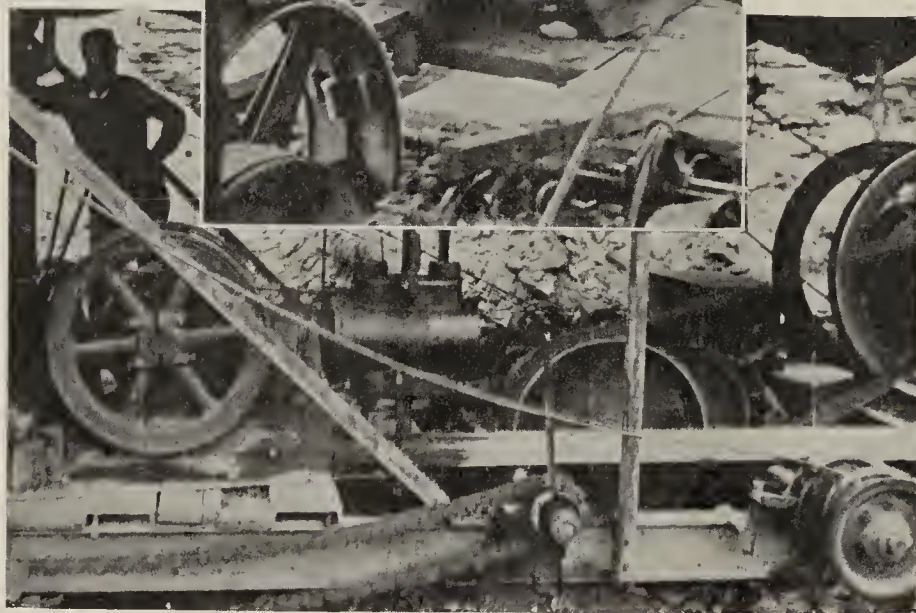
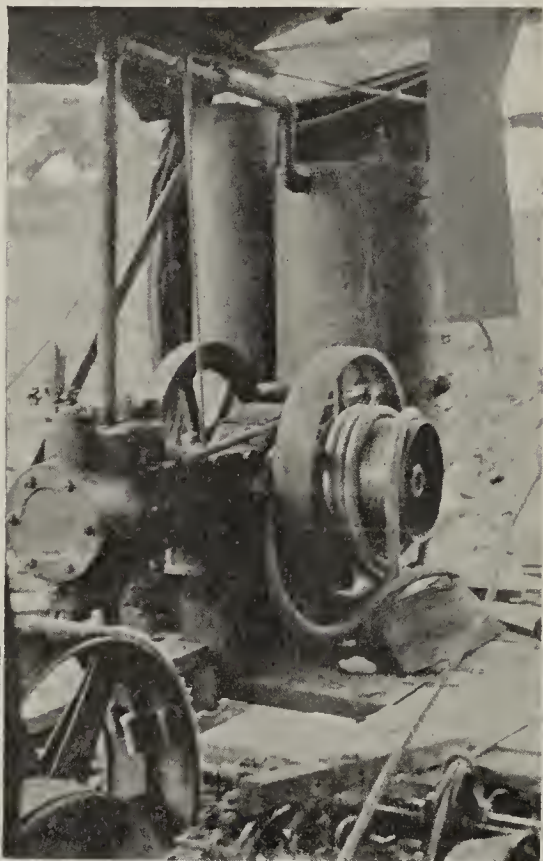
Air Compressor for Pneumatic Drilling Operated by Same Gas Engine as Excavator

A unique idea in connection with pit operation may be seen at the Ford Brick & Tile Co., Harrisburg, Ill., a small plant of about 30,000 daily capacity. A Bay City excavator was recently installed on this plant, and upon the excavator platform was placed an air compressor which is operated by the same gas engine that operates the excavator, and is put into operation by simply connecting a belt on the pulleys of the engine and air compressor.

The air compressor is used to supply the air to operate

Upper View Shows Air Compressor Located in Corner of Excavator Platform.

Lower View Shows Position of Excavator with Respect to Gas Engine of Excavator Part of Which May Be Seen on Extreme Right.



a pneumatic hammer drill, which the Ford Brick & Tile Co. uses for drilling holes in its clay bank for the insertion of the powder which is used to blast the shale.

Charles P. Ford, superintendent, reports that considerable money is saved by this idea, and it is a very simple and effective means of aiding the company in securing shale from the bank at lowest cost.

Provides Lunch Room With a Minimum Expenditure

Change from Steam to Electric Power Enables Iowa Plant to Convert Old Power Rooms Into Homelike Lunch Room

Very good use has been made of the old boiler and engine room of the Rockford (Ia.) Brick & Tile Co. This company formerly used steam power and when they changed to electric



Convenient Chairs and Tables Supplemented by Hot Coffee Make Lunching a Real Pleasure.

drive, the old boiler and engine room, approximately 30x40 feet, was changed into a lunch room for the workmen. Practically the only expense connected with this change was the cost of installing a concrete floor and a few benches. Hot coffee is served to the men, and naturally improves the quality of a cold lunch.

This can hardly be called a direct cost reducing feature, but it certainly assists in the improvement of the morale of the men and indirectly improves the output and reduces cost. The men are able to do more and better work in the afternoon because of the pleasant eating arrangements and of changing the cold lunch into a warm meal.

Saving Two Days on Every Kiln Turnover

Use of Portable Fan Connected by Pipe to Kiln Crown Hole Expedites Drawing

Clay plants often find themselves up against it for kiln space, and feel very helpless when waiting for kilns to cool off sufficiently for the men to enter and unload their contents.

A plant need not be so helpless, however, if it will use the idea that several clay plants now have adopted for cooling their kilns quickly.

There are several ways for cooling kilns by the use of fans or blowers. Some use them in the kiln wicket, but M. W. Blair, superintendent of the Murphysboro (Ill.) Paving Brick Co., believes that by taking the heat out of the crown

hole, the cooling can be expedited much more than by any other method. This is because the heat naturally rises to the top, and is simply drawn off thru large iron pipes connected to the fan in the manner shown in the accompanying photograph. The equipment is portable as it is mounted on a truck. The fan is driven by an electric motor.

Besides cooling the kiln quicker, it is claimed that the

INCREASED PROFITS

men can work in the kiln sooner, since the cool air is drawn past them during the operation of the fan.



Galvanized Iron Pipe Reaching from Center Crown Hole of Kiln to Fan, Mounted on Truck. This Equipment Can be Moved from Kiln to Kiln.

Fully two days are saved on the Murphysboro plant by the use of the portable suction fan, and over a period of a year it saves many times its small cost and makes working conditions for the drawing crew considerably more pleasant.

Oxy-Acetylene Welder Essential Apparatus for Plant

One Man with This Equipment Does Same Work in One-fourth Time Formerly Taken by Two Men

A very good piece of equipment for clay plant use, but which as yet does not find general use in the clay products industry, is the oxy-acetylene cutting and welding outfit. The few users of this apparatus in the industry speak very highly of its utility.

Marion W. Blair, superintendent of the Murphysboro (Ill.) Paving Brick Co., states: "It is one of those tools which is not appreciated because it is not in general use, hence not familiar to the industry. It is only in the past two years that I have become familiar with some of its many uses. Today it is considered as essential to the operation of a plant as the drill press or blacksmith's forge.

"Among the jobs which can be mentioned are the following: Cutting and fitting heavy rails along a clay pit track; cutting and fitting steel plate for hopper linings, coal chutes, etc.; burning any holes in steel which do not require the accuracy of a drill press—done very often on a machine in place; cutting off heavy shafting; cutting off the bead on boiler flues; cutting off battered bolts on the dry pans and other close places.

"Nearly all of these jobs will be recognized as ordinary cold cutter and sledge jobs requiring two men. With the oxy-acetylene cutting torch the work can be done by one man in one-fourth the time. There is also the additional convenience and saving of being able to take the tool to the job. This is particularly valuable when it is necessary to mend a leak in a buried water line or a steam leak in a complicated line of pipe.

"In welding small castings and machine parts in either brass or iron the time and labor saved in making repairs is almost invaluable. Usually a welded piece will outwear the machine. Any handy man as found in most plants can learn to use the torch to good advantage."

How to Increase the Life of a Red Brick Kiln Crown

Use of Patches of Fire Brick Above Furnaces Prolongs Life of Crown

Hundreds of plants in the United States can use to good advantage the kink used by the Veedersburg (Ind.) Paver Brick Co. As in the case of this plant, there are plants whose products are burned at not high enough temperature to make it essential to use a fire brick crown. Yet there are many plants using red brick crowns that have failures which might be obviated by the simple remedy used by the Veedersburg plant.

This plant, which uses round down-draft kilns for burning paving brick, constructs its crown of paving brick with the exception of patches of



Oxy-Acetylene Blow Torch Being Used in Repair Shop of Large Illinois Paving Brick Plant with Great Success.

fire brick that are worked in directly over each bag wall or furnace.

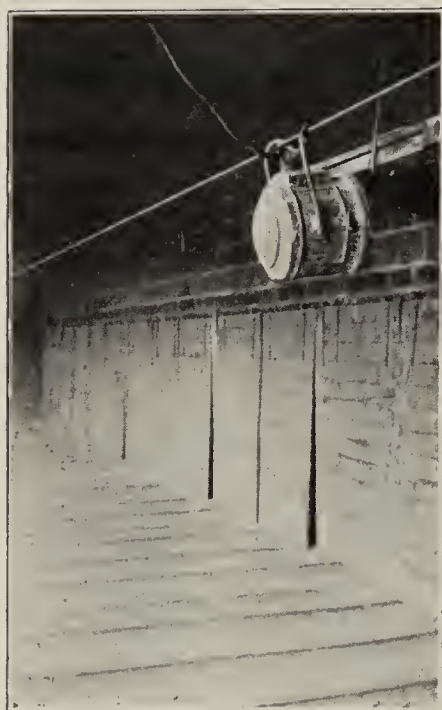
It has been the experience of the Veedersburg plant that this method of kiln construction prolongs the life of the

ELIMINATE WASTE

crown considerably. The heat from kiln furnaces is naturally most severe directly above the furnace, hence that part of the crown above the bag wall receives the hardest treatment. Thus the advisability of using fire brick in that portion of the crown.

Automobile Headlight Assists in Dryer Operation

Very Simple Attachment Provides Ample Illumination for Both Ends of Dryer Tunnels



Location of Original Dryer Lighting System Showing Its Relation to Door of Tunnel When Raised.

An original arrangement for light in dryer tunnels has been installed by the Adel (Ia.) Clay Products Co. On each end of the dryer, as shown in the illustration, a wire has been stretched taut. On each wire is placed a 75-watt electric globe mounted in an ordinary automobile headlight. This attachment is hung from the wire by means of hooks and can be moved across the dryer so that it is available for any track. Attachment plugs are placed at convenient points. The lights are strong enough to show in the tunnels several car lengths from the

doors. They are ample for all purposes and assist the men considerably.

Homemade Dryer Attachment Saves Labor and Increases Production

Unique Set of Wooden Blocks and Wires Indicates at All Times the Location of Dryer Cars

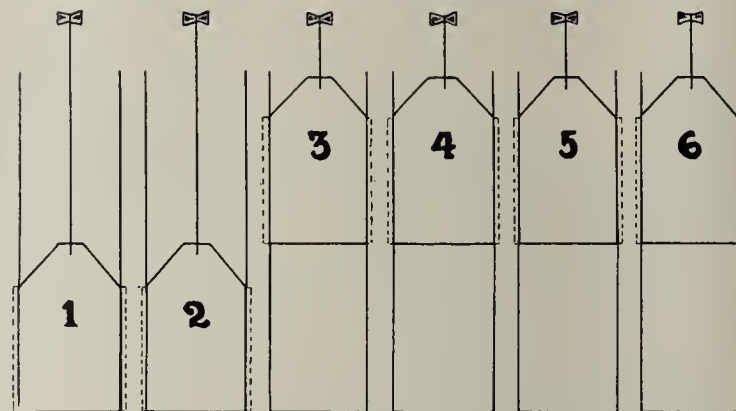
Production is speeded up, time is saved and dryer wrecks prevented by a homemade device for signalling from one end of the dryer to the other to indicate which tracks should be pushed and which tracks have been pushed, at the plant of the Rockford (Ia.) Brick & Tile Co.

There are 24 tunnels in the dryer. A block of wood is assigned to each end of each track as shown in the illustration. Each pair of blocks, that is, the two corresponding to each track, are connected together by wire.

When the man at the hot end of the dryer pulls out a certain number of cars from track number one, he sets the next car just inside of the door with a block on the wheels to prevent the cars running thru the door when being pushed from the other end. At this time he pulls down the block on his end of the dryer corresponding to track number one. This action pulls up the block for track number one on the cold end of the dryer and is an indication to

the man on that end that it is time to push the cars in track number one.

When the man on the cold end completes pushing the cars in track number one, he pulls down the block on his end of the dryer corresponding to this track. This action pulls up the block on the hot end and is an indication to



This View on Hot End Shows That Tracks 1 and 2 are Ready to be Pushed and That the Others are Not. The Position of the Blocks on the Cold End is Just the Reverse.

the man on that end that track number one has been pushed and that he can again pull cars from that track if he desires.

The same procedure is used for every one of the 24 tracks. It is easy, therefore, to tell from either end of the dryer the condition of the cars in every track. For instance, on the cold end a man can tell at a glance just what tracks should be pushed, and likewise on the hot end a glance will tell what tracks are ready to be pushed.

This system not only saves the time of the men, but enables the superintendent to obtain full efficiency from the dryer. This means full production of the plant and the smallest possible dryer breakage.

This contrivance is a homemade improvement of the superintendent of this plant, George Kornegor.

Water in Clay Pit Removed Automatically

Submerged Centrifugal Pump in Sump House Started and Stopped by Float Valves

Pit trouble due to rains has been entirely eliminated at the plant of the Adel (Ia.) Clay Products Co. They have built a sump house, and the lowest point in the pit or sump is 12 feet below the lowest point of the shale pit. In this sump house they have a submerged centrifugal pump with five inch discharge. It is directly connected on a vertical shaft with a ten horse power motor. Automatic float valves are provided which start the motor and pump when the water comes up to a certain level. Likewise they automatically break the current, thereby shutting off the motor and pump, when the water falls below a certain level. This pump will deliver 750 gallons per minute, and will keep the pit dry even tho a rain of two inches per hour fell continuously.

H. R. Straight, secretary and general manager, says they would be thousands of dollars ahead now if they had known years ago of an installation of this kind that they could have duplicated.

What Freight Rates Cost the Public

In the Three Years from 1918 to 1921 Rates on Hollow Tile Increased 89 Per Cent.—Rail Shipments Were Reduced 32 Per Cent. in 1921 Under 1920 Shipments

Harry S. Elkins*

Johnson & Elkins, Attorneys, Washington, D. C.

HOLLOW BUILDING TILE is generally used in the construction of large structures in urban centers, and, altho comparatively new in the field of building materials, is rapidly finding its way to the farms for general building and drainage purposes. Six states—Ohio, Iowa, New Jersey, Illinois, Pennsylvania and Indiana, arranged in order of importance in volume—in 1918 produced 76 per cent. of the total volume and 75 per cent. of the total value of the tile produced. In four of those states coal deposits are near the beds of fire clay and shale at which the kilns are located, but in some

Table No. 1.—Increase in the price per thousand of hollow tile to the consumer caused by increase of 20 cents a ton in freight rate.

Size	Weight Lbs.	Amount of increase per M
4-inch partition.....	16	\$1.70
6-inch partition.....	22	2.30
8-inch partition.....	30	3.10
10-inch partition.....	35	3.70
12-inch partition.....	40	4.20
8-inch wall tile.....	34	3.60
10-inch wall tile.....	40	4.20
12-inch wall tile.....	52	5.10
4 by 5 by 12-inch bakups.....	9	.95
8 by 5 by 12-inch bakups.....	15	1.82

states, as New Jersey, the manufacturing costs are higher because of the greater distance coal must be hauled. Notwithstanding this disadvantage, New Jersey is third in the volume of production.

The hollow tile industry suffered to a much greater extent than the cement industry during the business depression. The records of the hollow tile association show shipments by rail in 1921 were reduced 32 per cent. under 1920 and production was reduced 46 per cent. Figures for 1921 of the National Fire Proofing Company show a reduction of 28 per cent. under the number of shipments made in 1920, and of 37 per cent. under figures for 1916.

Freight Rate Increases \$1.68 in Three Years

An analysis of 464 orders made by the National Fire Proofing Co. resulted in some startling figures. It showed that the average freight rate per ton on those orders, shipped between September 1, 1920, and May 1, 1921, was \$3.58 per ton as against an average in 1918 of \$1.90 and approximately \$2.60 in 1919. Due to the extent of the operations of the National Fire Proofing Co., which operates 23 plants in the United States and one in Canada, these figures can be used as accurate averages for the country. For every 20 cents a ton increase in freight rates, the result is to increase the price per thousand tiles to the consumer in the amount shown in the last column of Table No. 1.

Production and Freight Costs

To illustrate the effect of freight costs upon the price of materials necessary to produce the tile, a study was made of the items of production costs at Philadelphia, Pa., the most important of which in their relationship to freight costs are outlined in the paragraphs A, B, C and D below:

A. The cost of moving a car of steel of 30 tons at \$7 per ton from Pittsburgh to Philadelphia is \$210. At \$45 per ton, f. o. b. plant, the value of the steel transported is \$1,350. The transportation charges are 13½ per cent. of the delivered price.

B. The cost of transporting a car of clay building tile of 30 tons, at \$5.20 a ton, from Canton, Ohio, to Philadelphia, Pa., an even 100 miles greater distance, is \$156. The value of the commodity transported at the average price prevailing today of \$5.40 per ton, f. o. b. factory, is \$162, the freight charges representing 49 per cent. of the delivered price.

C. The cost of moving a car of face brick of 33 tons (11,000 brick) at a freight rate of \$4.30 from Kittanning, Pa., to Philadelphia, mileage practically the same as from Pittsburgh, is \$141.90. The value of the commodity transported at the prevailing average price of \$35 per thousand, f. o. b. factory, is \$385, and the transportation charges are, therefore, 27 per cent. of the delivered price, equivalent to \$12.90 a thousand brick.

D. The cost of moving a car of yellow-pine lumber of 20,000 feet, approximately 25 tons, from the Mississippi yellow-pine center to Pittsburgh at 52½ cents per hundred-weight, or \$10.50 a ton, is \$262.50. The value of the lumber at an average price of \$45 per thousand, f. o. b. plant, is \$900, so that the transportation cost represents 22½ per cent. of the delivered price of the lumber.

Railroads Should Lower Hollow Tile Rates

It is obvious that the freight costs distributed over the unit of sale will always be greater upon the bulky, heavy-loading commodities, whose original value is comparatively low, than on the higher class of articles, such as finished food products, clothing, high-grade furniture, and so forth. It must be expected that the percentage of freight costs to the prices of these low-grade commodities can not be as low as those for the higher-valued articles, as these commodities, with other so-called low-grade commodities of heavy tonnage, represent the great factors in the earning capacity of our railroads. To reduce the rates on this commodity, for instance, to a basis of fixed relationship with higher-classed articles between value and freight costs would disregard entirely the element of the cost of transportation service. It must be said, however, that tile is a basic commodity and that a reduction in the freight costs should be undertaken when the carriers are in a financial position to make further reductions in their rates.



Eliminate waste or waste will eliminate you.

* Editor's Note—Written for The Constructor and reprinted from that journal.

Business Briefs and Trend

BUSINESS AGAIN ON SOUND BASIS

No clearer demonstration could be asked to indicate the soundness of the fundamental conditions underlying the present business revival than the persistence with which commerce and industry have progressed in the face of recent serious obstacles. The extremely serious labor difficulties thru which we are now passing would, under many conditions, have completely demoralized business; instead, real progress continues to be made.

Figures now available on business movements during July show that the rate of progress was materially slackened in that month. In the majority of industries, production and sales were less than in June. A part of this is to be attributed to the usual mid-summer seasonal slump and a part either to approaching over-production or to increased prices and increased production costs.

The extent of the real progress of industry on the road back to normal is seen when current figures are compared with those for a year ago. In almost every instance production is on a much higher level than in 1921. Perhaps the most favorable feature of the present situation is the prospect for a bountiful harvest this fall.



COAL SHIPMENTS APPROACHING NORMAL

A total of 158,010 cars were loaded with coal during the week which ended on September 9, according to reports just received from the railroads of the country by the Association of Railway Executives.

This was a decrease of 9,418 cars compared with the preceding week, but had it not been for the observance of Labor Day, loadings last week would have exceeded the week before and been the largest since April 1 last, when the miners' strike began. On Labor Day, only 10,021 cars were loaded, compared with 30,054 cars on the preceding Monday. Except for Labor Day the average daily loading last week was approximately 29,600 cars, while the average for the week before was only 27,900 cars.

On the basis of the number of cars loaded with coal, production last week was approximately 8,700,000 tons, compared with approximately 9,250,000 tons the week before.

Coal loadings on Saturday, September 9, totaled 27,527 cars, 960 cars less than the preceding day, but 2,370 cars above the previous Saturday. Loadings on Saturday, however, are generally lower than other week days owing to a short day being observed at most mines.



WHOLESALE PRICES RISING

Altho not particularly active, the wholesale commodity markets continue to display a well defined upward tendency, there having been 50 advances in the 339 quotations received last week by Dun's Review, as against 16 recessions. In the statement of week before last 38 increases compared with 28 declines, while in a similar comparison for the corresponding week a year ago 37 out of 73 changes were in a downward direction.



OPEN SHOP INCREASES BUILDING

The doctrine that labor costs are passed on to the consumer is a sound one. Even the American Federation of Labor

believes it. Furthermore, it is pretty well proved by the conditions in industry as they exist today.

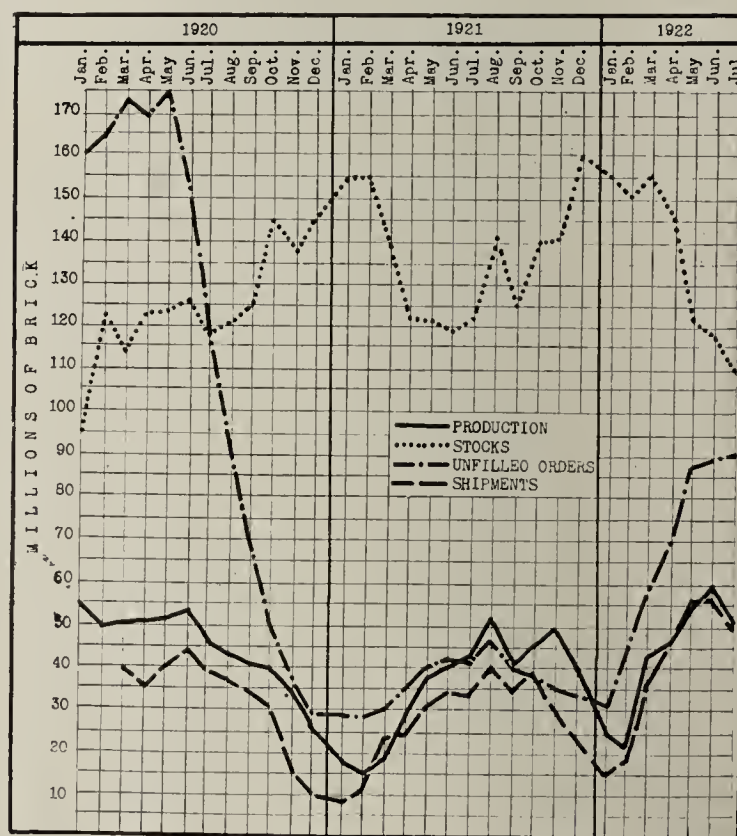
It is a difficult thing to obtain actual statistics which will show some of the effects of union labor's measures for restricted output, and their war on all labor-saving devices, but some illuminating statistics along these lines have been obtained from the building industry.

In general they show that closed-shop cities do less building than open-shop cities. Among the closed-shop cities, permits in Cleveland averaged \$58 per capita of population, \$49 in Kansas City, \$46 in Chicago, \$44 in Cincinnati, \$39 in Pittsburgh, \$32 in Louisville, \$21 in New Orleans, \$16 in St. Louis, and \$2 in Butte. The general average in 15 closed-shop cities was \$41.

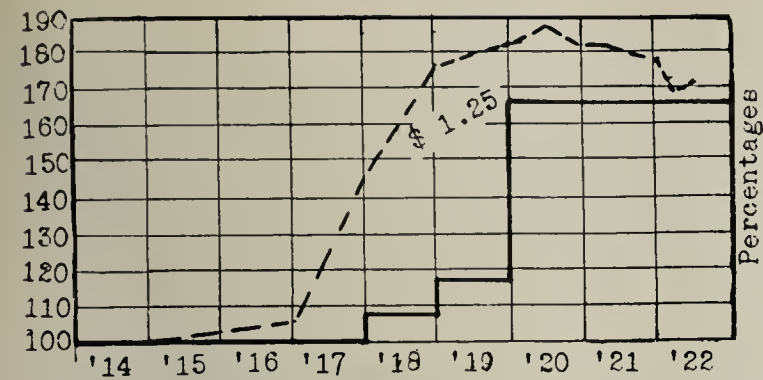
Looking now at the open-shop cities, Akron is at the bottom with a per capita of \$18, then Seattle at \$41, Milwaukee at \$55, St. Paul at \$61, Minneapolis at \$62, and so on up to the top where Los Angeles stands at \$143 per capita.

The general principle is that under-building produces higher rents and less work. "In 1921 two of the open-shop towns showed rent decreases—8 per cent. in Detroit, 4 per cent. in Seattle; four showed increases of—1 per cent. in Atlanta, 7 per cent. in Richmond and Minneapolis, 11 per cent. in Los Angeles. But rents advanced more in the closed-shop towns and in all of them—1 per cent. in Cleveland, 3 per cent. in Cincinnati, 4 per cent. in Kansas City, 8 per cent. in Indianapolis, 13 per cent. in New Orleans, 15 per cent. in St. Louis and Pittsburgh, 22 per cent. in Scranton and 24 per cent. in Chicago."

An average of the percentages of rent increase for the two groups over their respective populations as a whole shows that in the closed-shop towns the advance was 30 times as great as in the open-shop towns.—Boston News Bureau.



Production, Stocks, Unfilled Orders and Shipments of Face Brick, 1920, 1921 and 1922. From Figures Reported to Survey of Current Business by American Face Brick Association.



Comparison of Bricklayers' Wages and Cost of Living in New York in Percentages Based on 1914 Equal to 100 per Cent.—Taken from Index.

AMEND COAL PRIORITY ORDER

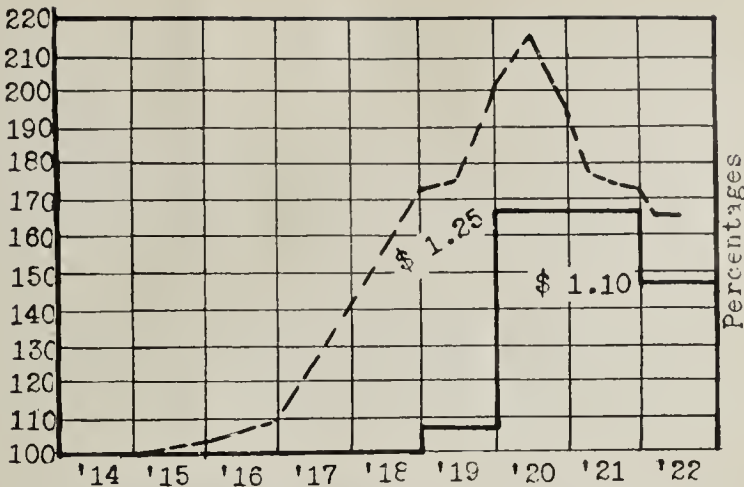
Approximately 34,000 additional open top cars have been made available for the shipment of commodities other than coal by the amendment of Service Order No. 23 of the Interstate Commerce Commission. This amendment was effected thru the petition of the Associated General Contractors, which showed that the continuance of the priority order on coal meant a shut-down for the majority of construction projects. This order of the I. C. C. is of the greatest importance to the construction industries, as it permits the use of flat bottom gondola cars up to 42 inches in height for shipment of materials other than coal.



COAL PRICES IN IMPORTANT SECTIONS

The following coal prices were taken from the Coal Trade Journal and are the latest available. The quotations are f. o. b. mine.

	Mine Run	Prepared Sizes	Screenings
ILLINOIS:			
So. Illinois.....	\$4.50-4.75	\$4.90-5.25	\$4.25-4.85
Central Illinois.....	4.50-4.75	4.75-5.15	4.25-4.50
INDIANA:			
Clinton District.....	4.25-4.50	5.00-5.25	3.75-4.00



Comparison of Bricklayers' Wages and Cost of Living in Chicago in Percentages Based on 1914 Equal to 100 per Cent.—Taken from Index.

Linton District.....	4.25-4.50	5.00-5.25	3.75-4.00
Knox County.....	4.25-4.50	5.00-5.25	3.75-4.00
KENTUCKY:			
Southeastern	4.50-5.50	4.50-5.50	4.50-5.50*
Northeastern	4.50-5.50	4.50-5.50	4.50-5.50*
Western	4.00-5.00	4.00-5.00	3.75-5.00
OHIO:			
Pittsburgh No. 8....	5.00-5.75	6.00-6.50	5.00-5.75*
Hocking	5.00-5.75	6.00-6.50	5.00-5.75
Pomeroy	5.00-5.75	6.00-6.50	5.00-5.75*
WEST VIRGINIA:			
Smokeless	4.50-6.00		4.50-6.00*
Kanawha and Logan.	4.50-6.00	4.50-6.00	4.50-6.00
Fairmont	4.50-5.25	4.50-5.25	4.50-5.25
PENNSYLVANIA:			
Pittsburgh	3.75-5.00	4.00-5.50	3.75-4.00*
Pittsburgh Gas	3.75-5.00	4.00-5.50	3.75-4.00*
South Fork **	4.50-7.00		
Good Clearfield ** ..	4.50-6.50		
Ordinary Clearfield**	4.50-6.00		
Connellsville District	4.50-7.50†	4.50-5.00	4.50-5.00*
* Slack.			
** Low Volatile.			
† High Volatile.			



The Building Situation

CONTRACTS AWARDED in the 27 Northeastern States during August amounted to \$322,007,000, according to the F. W. Dodge Co. This figure was 46 per cent. over that of August, 1921, and only 8 per cent. under that of July, 1922. That a seasonal decline has set in after four months of unprecedented activity and that the decline is so slight would seem to be a most wholesome indication for the remainder of the year.

The August figures brought the total for the year to date up to \$2,362,872,000, which is not only the largest figure for the first eight months of any year, but is greater by seven million dollars than the total for the entire year 1921. Comparing this year with 1921 on the eight months' basis this year is 58 per cent. ahead.

The outstanding feature of the August statistical statement is the increase in industrial plant construction which amounted to \$67,373,000, or 21 per cent. of the month's total. This is the largest monthly figure for this class since March, 1920. One project accounted for 35 millions of this large total, the by-product coke plant of the Carnegie Steel Co. near Pittsburgh. Even omitting this large single project, the remaining amount is greater than any monthly total since November, 1920.

Residential building still maintains the lead in August, with \$100,882,000 worth of contracts, or 31 per cent. of the total. Public works and utilities amounted to \$49,825,000, or 15

per cent.; business buildings, \$38,122,000, or 12 per cent.; and educational buildings, \$32,055,000, or 10 per cent.

Contemplated new work reported during the month amounted to \$371,249,000.

New England

Total construction started in New England during the first eight months of this year has amounted to \$229,184,000, compared with \$205,147,000 for the entire year 1921. Compared with the first eight months of last year, this year's increase is 87 per cent.

August building contracts in New England amounted to \$28,074,000, an increase of eight per cent. over July and of 37 per cent. over the corresponding month of last year. Included in the August total were: \$12,672,000, or 45 per cent., for residential buildings; \$4,303,000, or 15 per cent., for business buildings; \$3,437,000, or 12 per cent., for public works and utilities; \$2,961,000, or 11 per cent., for industrial plants; and \$2,291,000, or eight per cent., for educational buildings.

Contemplated new work reported during the month amounted to \$41,236,000.

New York State and Northern New Jersey

During the first eight months of this year the total construction started in New York State and Northern New
(Continued on Page 418.)

Two New Association Secretaries

Successors Appointed for E. R. Sturtevant in
H. B. T. A., and Maurice B. Greenough in N. P.
B. M. A.—Both Men Leaving for Larger Fields

AT A MEETING of the board of directors of the Hollow Building Tile Association on September 6, J. S. Sleeper was elected as acting secretary of the association, due to the resignation of Mr. Sturtevant. Mr. Sleeper has been with

on the Liberty Motor at Detroit, Mich. Previous to his Government service, Mr. Sleeper was advertising manager of the Firestone Tire & Rubber Co. of Akron, Ohio, which concern spends about a million dollars a year for advertising and publicity.

Executive Association Formed

At the September 6 meeting it was decided to extend to Mr. Sleeper the assistance of an executive committee, consisting of James T. Howington, president of the association, and general manager of the Coral Ridge Clay Products Co., of Louisville, H. M. Keasbey, president of the National Fire Proofing Co., of Pittsburgh and H. C. Downer of the Malvern (Ohio) Fire Clay Co. Mr. Downer was also elected treasurer of the association.

Entering upon the responsibilities of the secretaryship at this time, Mr. Sleeper has before him a very optimistic outlook. The industry has just recovered from one of the worst years in the history of the business, 1921, being fairly on its feet at the present time after having passed thru a prosperous six months since the first of the year. With the coal and rail strikes practically settled, it is probable that most tile manufacturers will devote their energies during the next six or eight months to production, with a view to taking care of the enormous demand that is almost certain to develop in the spring of 1923.

Advertising, both national and local, will be resumed as funds are available. The real work before the association at the present time is the task of making hollow building tile manufacturers who are not affiliated with the association see the distinct advantage of being lined up with an organized industry, and the benefits to be obtained therefrom. The Hollow Building Tile Association has been one of the most successful trade associations in the clay products manufacturing industry, and the outlook is for continued success and increased prosperity.



J. S. SLEEPER

the organization since August 1, 1919, when he was elected advertising manager in connection with the extensive campaign which the association was about to launch at that time. Mr. Sleeper was in Government service prior to that time, engaged in aircraft production, having charge of service



JAMES T. HOWINGTON



H. M. KEASBEY



H. C. DOWNER

These Three Men Form the Executive Committee Which Will Assist J. S. Sleeper, the New Secretary of the Hollow Building Tile Association.

Coincident with the announcement of the change in the secretaryship of the Hollow Building Tile Association, comes the news that at a meeting of the board of directors of the National Paving Brick Manufacturers' Association held in Cleveland, September 14, a successor to Maurice B. Greenough was elected. As announced in the last issue of Brick and Clay Record, Mr. Greenough has resigned as secretary, and the new man just appointed is Edward Duff, Jr.

Mr. Duff is not unknown, as he has been western district engineer of the Eastern Paving Brick Manufacturers' Association for three years. His very valuable experience in this capacity fits him admirably for the duties as secretary of the national organization. In 1913 he graduated from Carnegie Institute of Technology, and during the war helped his country as captain of engineers. He has also had some

engineering experience with railroads, having been engineer of the Pennsylvania Railroad at one time. In addition to these other duties he has held the position of borough engineer in Sewickly, Pa.

The National Paving Brick Manufacturers' Association is one of the largest clay products associations, and as the guider of its destinies Mr. Duff will wield a powerful influence in paving brick circles. Announcement has not yet been made regarding the date when he will begin his duties as secretary.

Maurice B. Greenough, the man whom he succeeds, will leave Cleveland for Chattanooga, Tenn., about the first of next year, where he will be associated with W. M. Lasley of the Southern Clay Manufacturing Co. in the manufacture of paving brick, contracting and other enterprises.



E. R. Sturtevant Leaves H.B.T.A.—Goes to Fraser Brick Co.

AFTER MORE THAN FIVE YEARS of untiring service in behalf of the Hollow Building Tile Association, most of which was at the time when this country was involved in the throes of European War, E. R. Sturtevant has resigned as secretary of the association to become vice-president of the Fraser Brick Co., Dallas, Tex.

Those who were in attendance at the national convention of brick manufacturers held in New York City during February, 1917, will remember that at that time a small group of hollow tile manufacturers met to discuss ways and means for organizing, or rather reorganizing, a hollow tile association. At that meeting a committee was appointed, which later resulted in a general meeting at Cleveland, Ohio, where

Chicago office was closed, and headquarters were opened in the Occidental Hotel, Washington, D. C. The duty of the War Service Committee was to assist both the Government and the hollow tile manufacturers during the strenuous days of 1918, when the United States entered the war in earnest. The committee rendered very valuable service in getting material for the Government construction program, and also in aiding its members to secure whatever business was to be had. The work of this committee, under the direction of Mr. Sturtevant, will long be remembered in the annals of hollow tile history.

After the armistice, in the spring of 1919 the Chicago office was reopened with largely increased dues when the membership was increased from 40 to 90. With the increased income, the association was able to launch its well known advertising campaign which has done a great deal to put hollow tile definitely "on the map" so far as construction interests of this country are concerned.

Mr. Sturtevant is leaving the association to accept an offer such as comes only once in a lifetime to the average man. The Fraser Brick Co., which has plants at Ginger (near Dallas) and Seguin (near San Antonio) was organized by Walter Fraser. The company at present is the largest producer of hollow building tile in the Lone Star State, as well as being large distributors of face brick and other building materials. Associated with Mr. Sturtevant is J. H. Payne, who is known thruout his section of the country as well as in the hollow building tile industry as an eminently successful merchandiser and sales manager. Mr. Payne is very much absorbed in the science of advertising, and was an interested delegate at the recent convention of the Associated Advertising Clubs of the World in Milwaukee, Wis., in June.

The largely increased business and the need for a wider organization on the part of the Fraser Brick Co. has been responsible for the acquisition of Mr. Sturtevant, who leaves his friends in the hollow building tile industry with considerable regret, but with the satisfaction of having before him almost unlimited possibilities in a state which is an empire in itself and which is growing fast.



DUTY ON MAGNESITE CHANGED

According to tariff schedules revised by the Senate August 19, duty on crude magnesite will be $\frac{1}{8}$ of one cent per pound; on caustic calcined magnesite, $\frac{5}{8}$ of one cent per pound; dead burned and grain magnesite not suitable for manufacture into oxychloride cements carry a duty of $\frac{4}{10}$ of one cent per pound.



E. R. STURTEVANT

the present Hollow Building Tile Association was formed on March 28, 1917, and Mr. Sturtevant was elected secretary. From that date until July 1 of the same year, Mr. Sturtevant spent considerable time in the field securing new members, following which the present office in the Conway Building, Chicago, was opened. The assessment on the membership at that time was two cents per ton.

In 1918 the association ceased to function as such, and the Hollow Tile War Service Committee was organized. The

Should We Drain Our Roads?

Moisture Invariably Weakens the Bearing Power of Soil—A Dry Soil Will Withstand Almost Any Kind of Strain

Will P. Blair

Vice-president National Paving Brick Manufacturers Association

WHY DRAIN THE ROAD; how shall we drain the road; what do you mean when you say drain the road; can you keep the road drained; if you fail to drain the road what effect follows; if you drain the road what good does it do; if you don't drain the road will it go to ruin; is it worth the cost. These are forms of questions presented at every consideration of a road improvement project.

By one method or another, every road is subject to some effort to drain it. But who understands the problem and who appreciates its importance? All persons even with limited opportunity have noticed that the dry natural earth section of an earth road remains smooth, that it is not affected by speed impact or static load.

Wet Soil Has Little Bearing Strength

But when water is present, however described as moisture content, saturation, combined or free water, that natural soil is immediately changed in character, robbed of its supporting quality, becomes unstable, slips and slides and as one volume is pressed down, it presses another up; according to the character of soil and amount of water present, and traffic imposed, the bearing quality of the road is ruined.

Keep the Road-Bed or Subgrade Dry Is the Aim

What the problem is, is much easier stated than solved. However, there are certain apparent known factors which if taken into account will greatly aid us in reaching a conclusion as to what to do. It is fair to assume that water is the destructive agency and that the presence of water finds its way into the earth portion of the road in three ways:

By rain-fall.

By horizontal flow thru the soil.

By that agency known as capillary attraction by which the water flows upward into the subgrade from a lower level.

Disposition of Road Surface Moisture

The water spread upon the surface by rain-fall is easily prevented from soaking into the soil under the road by the character of the road surface. If the wearing surface is composed of brick with the joints filled with a properly refined asphalt, it acts as a perfect roof over the wearing portion of the road. That portion of the berm adjacent to the wearing surface, for a width of at least two feet on either side, should receive a layer of broken stone or gravel of sufficient depth to hold an asphalt water proofing and the roof is extended over that much.

From the roof thus formed, the flow of water from rain-fall source easily finds its way either to a porous back filled trench or open inlets reaching down to the disposal drain pipe, which for many reasons should occupy the route usually assigned to the open ditch. The trench dug to place, this drain should be back filled with gravel, stone, slag or cinders, so that it will receive the overflow of rain-fall from the road surface and intercept the horizontal flow from adjoining fields. Inlets at frequent points will receive the excessive amount of water due to extreme downpours. Any one at all familiar with the natural conditions to be dealt with will readily understand the efficiency of this provision for rain-

fall disposal and no one will doubt that it will also intercept the horizontal flow of water from adjacent areas.

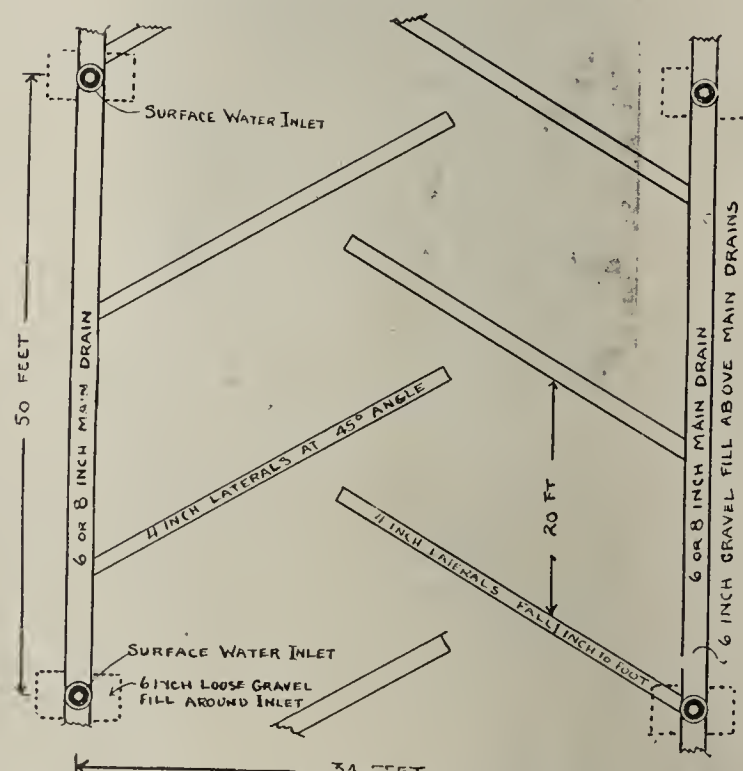
Capillary Attraction Is Big Factor

These two sources of water supply regulated against their contribution for making unstable the subgrade, we have but to deal with the supply from capillary attraction. We need not be concerned with moisture floating in the air. We ought not be confused by terms frequently employed in refined laboratory experiments, such as moisture content, combined or free water—either and both are water. It may be moisture as it travels upward in the tree, but flowing out drop by drop at the end of a limb, accumulating by the bucket full, it is water. Regardless therefore of the amount, the remedy lies in stopping the upward flow and to rapidly dispose of any water that may accumulate from any source.

Nor need we be greatly concerned as to the quantity of water or quality of retention existent with different soils. If we can remove and prevent the water entering the subgrade, above the ordinary frost line, we will have maintained the subgrade in an all sufficient bearing power.

Placing the Tile Laterals

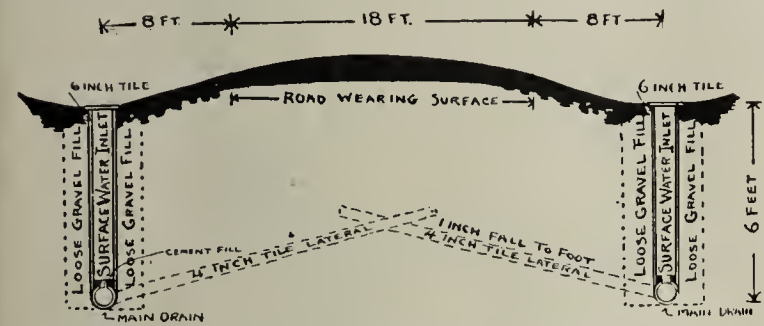
It is important to understand just how the lateral tile drains should be placed. As to their frequency, the lines



This Method of Placing the Laterals Under the Road Covers the Entire Area Underneath the Pavement.

should not be less than 20 feet apart and as much closer as plastic and fineness of soil indicates slow movement of water thruout. They should immediately underlie the layer of broken stone or coarse material as stated and made to discharge into "T's" placed for that purpose at intervals in the line of the disposal drain. There should be placed at a point

two feet below the wearing surface of the road, immediately overlaying the drain tile, a layer of broken stone, gravel or slag, coarse enough to assure a multiplicity of voids, affording a supply of air with which to load the moisture and accelerate the flow of water into drain tile. At the head of these lateral lines a mass of coarse material should be placed. It will be seen at once what such a provision will accomplish. A constant supply of air will be fed into these voids. As the moisture loads the air beyond its capacity, it will precipitate and seek its level thru the tile. The layer of coarse material will accelerate the movement of water and make drainage constant. The supply



Cross-Section Thru Road Showing Placing of Tile Drains.

of air will be sufficient to retard the capillary movement into the overlying subgrade, prevent saturation of that portion which if loaded with moisture works havoc in various ways, expansion and contraction during seasons of warmer temperature and extreme expansion during low temperatures.

Drainage Cheaper Than Excessively Heavy Roads

There are those who believe that economy lies in ignoring this problem altogether, to accept whatever nature provides and rely wholly upon the strength of the wearing surface to support the impact and weight of traffic. To the writer it is a strange flight of imagination and theory that would incur the necessary expense. Bridges are the most costly sections of highway improvements to build and maintain. Brick and tile men know that however plastic the clay, however difficult to withdraw the moisture from their ware, it is an essential process in manufacture and they apply the best known methods to secure the result. This very experience qualifies clay manufacturers to understand the simple and effective means here outlined, to maintain the subgrade of our roads in a dry condition.

That such a plan does not entail an excessive expense to install, considered in the light of its worth, and the negligible expense to maintain is manifest.

Ditch May Do More Harm Than Good

The open ditch is much more of a reservoir to hold water in supply to soak into the subgrade than to insure a constant flow

of water away from the road. The open ditch is expensive to maintain. It is a menace to safety in case of accidental shifting of team or automobile. If the open ditch functions at all it must have constant attention. It does not work at all during freezing weather.

On the contrary, the underground disposal tile and feeders are working all the time, winter and summer. The system rarely requires attention for repair.

The open road ditches require expensive upkeep—more often than the wearing portion of the road.

If the system of road drainage here advocated is of value as insisted, it becomes the duty of the clay industry to uphold and insist upon its use. It will save money in the long run. It will insure more satisfactory roads. Urging the use of such drainage system really becomes more of a patriotic duty than of serving merely a commercial interest.



CAROLINA MANUFACTURERS APPEAL FOR COAL

The coal situation appears to be particularly acute in the eastern section of South Carolina, where a number of the brick plants are reported to have been compelled to shut down entirely. Several of the brick manufacturers of that section held a meeting in mid-August at Florence, S. C., and after a survey of the situation decided to make a determined effort to obtain relief thru an appeal to the state fuel administrator. There is plenty of coal in the mines of this section but the railroad strike is holding up its delivery. The manufacturers present at the meeting included Edward Cox, of Marion; J. L. Anderson, of Cheraw; M. C. Thomason, of Cheraw; E. A. Poe, of Fayetteville, N. C.; Albert Layton, of Marion, and L. S. Morrison, of Florence.



COAL STILL BIG PROBLEM

"In spite of great obstacles and much discouragement, the brick industry has, by Herculean efforts, kept up its volume of production surprisingly well," says the monthly digest of the Common Brick Manufacturers' Association, speaking of the month of August. "The principal adverse factors are the mounting cost and scarcity of coal, unsatisfactory transportation conditions, and in some localities, scarcity of labor."

Reports indicate that coal is a serious problem to the brick manufacturer, and out of ten shut-downs reported, four were caused by lack of coal. Five other plants reported that they will shortly close for this reason. One of the plants closed down can make no shipments because of the rail strike.

Out of the 94 manufacturers reporting for August, 71 believe that the immediate outlook is good or fair, four look for "poor" business, while 19 did not express an opinion.



A Sign of Real Brick is Most Unusual, and Therefore Creates a Lot of Attention. This is a Clever Idea for Which the Brazil Clay Co. Deserves Considerable Credit. There are Several Brick Companies in the Middle West Who Believe in Billboards to Advertise Their Products, but so Far as We Know This is the Only Board on Which the Product Advertises Itself.

A BRICK BILLBOARD

Here we have the ultra in billboard advertising. Did you ever see anything more realistic than the brick in this sign? That's because they are even more than realistic—they are REAL. There are 20 panels of different types, textures and colors of face brick produced by the Brazil (Ind.) Clay Co., attractively framed in the sign. Different mortar colors and different bonds have been employed to bring out the variety of ideas possible in brick wall construction.

How Flower Pots Are Manufactured

Old Fashioned and Modern Ways Described—Types of Machinery, Clay and Equipment Necessary

This Article on Flower Pot Manufacture Is a Translation from the German of the Original Written by A. Tauber and Was Reprinted by Permission of Tonindustrie-Zeitung, Berlin. Translated by Brick and Clay Record.

Requests Have Recently Come in to the Office of Brick and Clay Record for Information on the Manufacture of Flower Pots and We Therefore Print the Article in the Belief that It Will Be Interesting. There Are Many Clay Plants Who Manufacture Flower Pots Profitably as a Side Line. The Methods Are the Same as Used in America.

IN ORDER to manufacture flower pots successfully it is necessary to know just what is required of them.

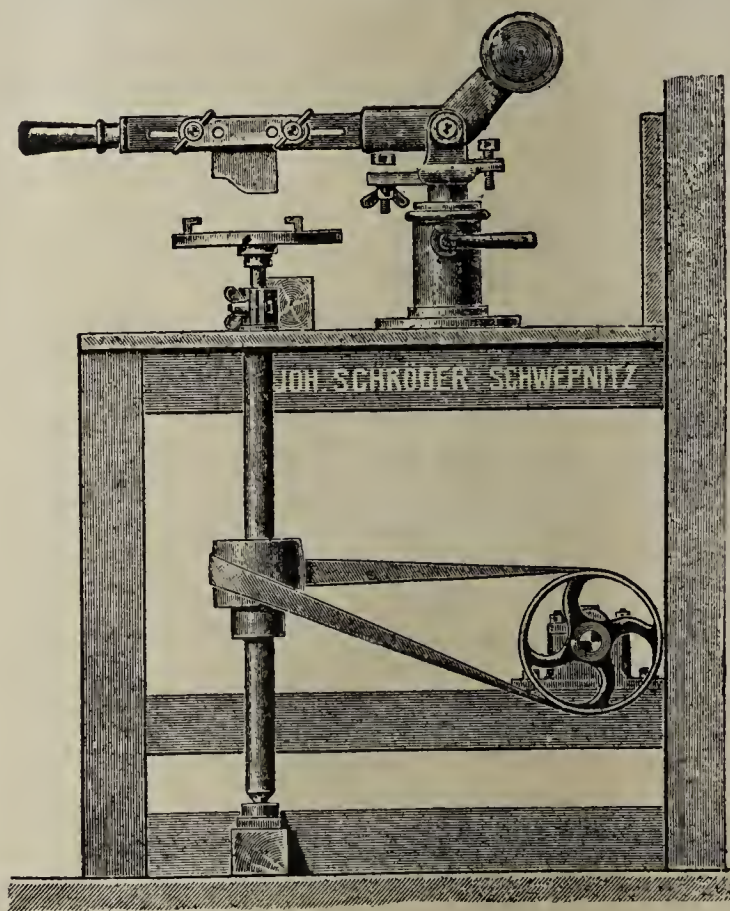
1. A flower pot must be burned so hard that even a sharp frost will not harm it. The constant moisture to which a flower pot is subjected will have a disintegrating influence on soft burned ware, even if it is not subjected to frost.
2. One of the requisites of a flower pot is thin walls; the size of the pot governs the thickness of the walls. It must always be borne in mind that the pot must be kept as light as possible, as heavy flower pots are not readily marketable. The walls of the flower pot should, therefore, be so thin that it is easily handled and yet retains a certain amount of strength.
3. All flower pots should be porous, permitting the passage of air to the roots of the plants. Vitrified or glazed ware cannot be used in the florists' greenhouses.
4. A hole must be provided in the bottom to permit excess water to run out.
5. Inside walls of the flower pot should be smooth, and the pot itself should be conical in shape. This will force the roots of the plant upward in growing, and will also facilitate the removal of the plant from the pot.

All Clays Will Not Make Good Flower Pots

In order to meet the requirements mentioned, clay must have certain qualities. Clays which are very lean, or those

containing a large number of small stones or other impurities cannot be used. On the other hand, clays which are easily workable and which will burn hard at a comparatively low temperature are very well fitted for manufacturing this kind of ware. The requisites of flower pot ware are practically identical with those of drain tile; namely, a medium hard burn, thin and porous

be successfully manufactured. As in the manufacture of drain tile, clays which contain very little lime and considerable iron, that is, red burning clays, are preferable to other clays. Clays of low shrinkage lend themselves more easily to the manufacture of flower pots than those which have a higher shrinkage, because as a rule they will result in a higher



Old Style Type of Shaper with Plate, Operated by Power.

percentage of good ware coming thru the dryer and the kiln. They are also less apt to lose their shape or crack.

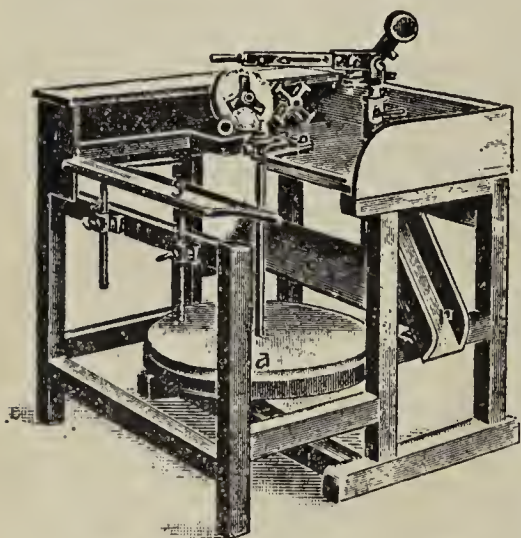
It is not always necessary to mix a fatty clay with other materials, but where this is desired a good aggregate is sand which is free from lime, containing grains which are not too sharp.

Test Clays in Laboratory

It is always a good policy to take samples of the clay and the material which is used to reduce plasticity, to some chemical laboratory and have it tested. One excellent reason for doing this is that in this manner information can be gotten as to the amount the clay will shrink in drying and burning. This knowledge is highly important, because the amount of shrinkage governs the size of the pot in the raw state, before it is dried or burned.

There are three different kinds of flower pots which are known by the following names:

1. German. This can be recognized by its smooth walls and the absence of any lug or shoulder at the rim. The height of this pot is approximately five per cent. less than the width at the top.
2. Belgian. This form is easily recognized by the shoulder at the rim and the dimensions, the width at the top of the pot being the same as the height.



Old-Fashioned Hand Operated Flower Pot Shaping Machine.

walls. The natural conclusion is, therefore, that plants manufacturing drain tile possess clays from which flower pots can

3. French. This form also has the strengthening shoulder. The height of the pot is about ten per cent. less than the width of the pot at the top.

Flower pots are, as a rule, manufactured in one of the following three ways:

1. By means of the foot or power operated jigger.
2. By using plaster of Paris forms and turning on the jigger.
3. By means of a flower pot press.

Preparing the Clay

Of the three mentioned, the oldest method in use is that of the foot operated jigger. This method requires the least equipment. These machines, however, can only be operated by experienced workmen, as it takes an extremely skillful man to mold the pot and retain the symmetrical form by this method. It is essential that the flower pots be absolutely uniform in shape, as otherwise a considerable amount of breakage will result, for the reason that the pots are stacked one inside the other in the dryers and kilns.

To make flower pots by this method, the following equipment is necessary:

1. Mixing room. 2. A clay cutting machine. 3. Jigger.
4. A number of boards 3 to 4½ ft. long and about 6 inches wide, to be used as drying boards.

Where it is desired to manufacture on a large scale, it is necessary to increase the number of drying boards and the jiggers. In the mixing room the clay is prepared and pugging is done. As it comes from the pit the clay is taken into the mixing room and broken up with a shovel, whatever ingredients are necessary are mixed in, and water poured over the clay. After it has been prepared in this manner, it is turned over several times with a shovel after the manner of mixing concrete by hand, and is permitted to stand about two weeks in the same spot where the preparation was accomplished. This gives the water an opportunity to penetrate thoroly all the particles of the clay. The pugged clay is then put into a clay cutting machine, the function of which is to make the prepared clay plastic thru a thoro mixing. The column of clay, as it comes out of the machine, is cut into pieces approximately 6x8x20 inches and put in the most convenient place possible in the vicinity of the jigger. In this form the clay pieces are usually permitted to stand for several days. To prevent the drying out of the clay pieces it is advisable to cover with cloths or sacks which are kept moist.

Making Pots by Hand

The jigger can either be a foot operated contrivance or operated by an electric motor or other mechanical means. It is well to provide a vessel which is filled with water for every jigger. The method of procedure when using this system is somewhat as follows:

The potter takes a piece of prepared clay of the proper size for the particular size pot he is making, and presses it on a table. He then wets both hands in water and molds the clay ball into a conical shape. The next procedure is to form this mass roughly into the semblance of a pot. This is done by pushing the thumbs into the mass from the top and at the same time gently drawing the two hands apart. Out of this rough form the finished pot is made. It is necessary that the rough form contain the correct amount of clay, sufficient to make the completed pot with its sloping and thin walls. The forming of the finished pot is accomplished by the correct placing of the thumb and index finger while the mass is turning. During the turning the clay in the side wall is made thinner and thinner, and at the same time is drawn higher until the desired height is reached. When the flower pot is completed it is separated with a wire from the table and placed on one of the previously described boards. From this description it can readily be seen that the manufacturing of a neat appearing, symmetrical flower

pot by this method requires a considerable amount of skill and experience.

Using Plaster of Paris Forms

In manufacturing flower pots with the use of plaster forms, a power-driven jiggering machine is necessary. This machine is similar to the foot propelled contrivance, with the exception of its power feature, its adjustable head for the placing of the forms, and the movable shaper holder. The illustration shows a power jigger. However, the shaper used is not for flower pot manufacture, but for the making of plates. A little bit of imagination will show at once what the shaper for flower pot manufacture would look like. It is nothing more than a slanting piece of wood, the slant deciding the shape of the flower pot. The width of this piece of wood at the bottom should measure half the width of the bottom of the flower pot. This board is fastened in the holder in such a manner that when it is let down into the plaster of Paris form there will be a space between the form walls and the edge of the board of about three-sixteenths of an inch, and the same space between the board and the bottom of the pot. This space, of course, determines the thickness

of the flower pot walls. If the clay is of such a nature that the walls can be made still thinner, it is a simple matter to adjust the shaper accordingly.

In manufacturing by this method the following procedure is acknowledged as general:

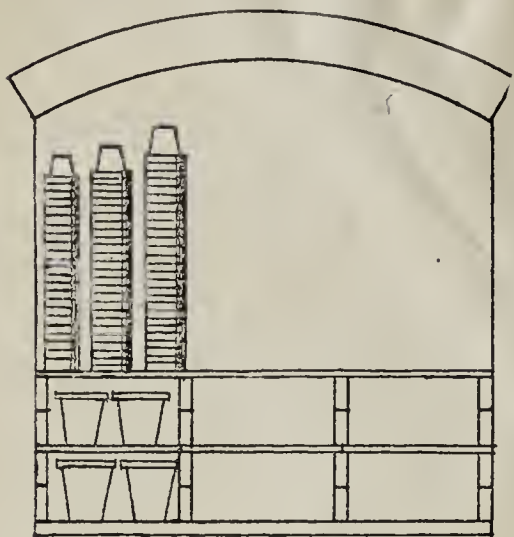
The holder is thrown back and a piece of prepared clay is pressed into the form with considerable force in order to make it fill the form. The machine is then started and the shaper is slowly let down into the form. As the shaper is pushed downward the pot is gradually being formed and when the shaper has reached its lowest position



FIG. 1. Flower Pot Press for Quantity Production.

the pot should be completed. The holder is then thrown back, the form laid away, and the jigger is ready for another pot. This method, which is based on quantity manufacture of pots of one size, requires no experienced potter, as even an inexperienced man can quickly learn the use of the shaper. One objectionable feature is that a large number of molds are required if any capacity is to be obtained. The mold

cannot be used again immediately after the pot has been formed, as it is necessary for a large percentage of the moisture in the clay to be absorbed before the green pot can be released. The forms will in time wear out, and must periodically be renewed. When purchasing plaster of



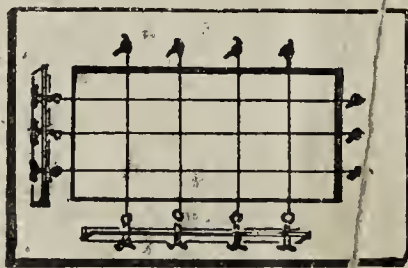
Pots are Seldom Set Higher Than Three Feet in Kiln. Kilns are Usually Low.

Paris molds, it is necessary to specify the amount which clay will shrink, for the forms in the molds must be so much larger that when the ware has been burned and shrinkage has been effected, the completed pot will be the required size.

For production on a quantity basis, the flower pot press is unquestionably the best method to use. Thru this method an hourly output of 300 to 400 pots of medium size is nothing unusual. Various flower pot presses have, in the course of time, been so perfected that better and more uniform ware can be turned out by this means. The capacity of these machines is considerable, and it is not necessary to have experienced and long-trained men to operate them. Most any worker of ordinary intelligence can in a short while become proficient in operating one of these machines. For manufacturing by this method the following equipment is necessary:

1. A place for preparing the clay. 2. A clay machine.
3. A cutter. 4. Press with two die forms. 5. Four wood horses about 28 inches high. 6. A flat vessel for lubricating oil. 7. A number of boards about six inches wide by five feet long.

The clay is brought from the pit to the preparation room where it is thoroly saturated with water. It is desirable, if possible and if space permits, to have separate storage space where the clay will be protected from weather. If possible, it is also good to have two preparing rooms so that clay from one can be used while in the other the water is given a chance to thoroly penetrate all the lumps. If only one press is employed, it is possible to get along with just one preparation chamber, approximately ten feet long, five feet wide and 2½ to three feet high. When manu-



Method of Cutting the Clay Column Coming Thru a Brick Die.

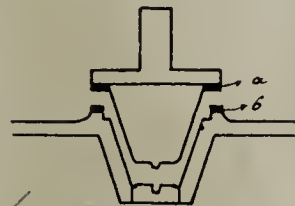
facturing flower pots by either of the former mentioned two methods, it is necessary to shape the clay in the form before it is put into the molds or on the jigger, as the operator himself can determine how much clay he desires.

Brick Machine Can Cut Clay

Where a flower pot press is used, however, clay machines should deliver balls of clay of the proper size for the making of the different sized flower pots. This can easily be accomplished by having a set of different sized dies for the clay machine for the various sizes of pots. The column can then be cut in pieces of any desired length by adjusting

the cutting wires. If it is desired to obviate the expense of these dies, it is possible to get along with the ordinary brick die. Due to the size of this column, it is necessary to cut it up in small sections, which is done by stretching a series of wires across the mouth of the die, cross-sectioning the column into many small pieces, as shown by the illustration.

The clay column, as it leaves the machine, is passed over a cutting apparatus which automatically cuts it into the desired length. It will probably be necessary to experiment before the exact length of the sections into which the clay column is to be cut for making the different sized pots, can be determined. If the clay pieces are too large there will be a considerable amount of waste. If on the other hand they are too small, the pot will not be fully formed. Having determined the correct size for the clay balls, the next procedure is to cut as many as will be required for a day's run, cover these with moist cloths or sacks, and permit them to stand for 24 hours or possibly more. It is well to do this as it gives the clay an opportunity to settle and cool, for it often happens that in passing from the clay machine out thru the die the clay column becomes warm, and warm clay cannot be used for pressing flower pots. If the clay is used while hot it will most probably crumble and fail to hold its shape.



Vertical Press Most Common

There are several kinds of flower pot presses which have good points to recommend them, the chief distinction being in the operation of the form. On some machines it operates horizontally, but by far the commonest form is the vertical machine. The procedure of manufacturing pots on a press is somewhat as follows:

The potter takes a ball of clay, dips it to slightly more than half into the lubricating oil, and then, placing the clay ball in the bottom of the press form, permits the whirling shaper to work on the clay until the mother form and the shaper have come together. Now if the clay ball is of the correct size the pot will be completed. If it is too small there will be a badly formed piece of ware with the rim probably only partly completed and if the ball is too large, there will of course be an excess amount of clay and the shaper will have to work longer than necessary, which means both a loss in clay and considerable time. If too much clay is used, it also results in an excess consumption of lubricating oil, as the constant whirling of the shaper will consume the oil and most probably it will be necessary to lubricate the shaper itself.

In employing men for the operation of the press, it would probably be best to do so on an hourly rate rather than on a piece work basis, as this will insure more exact and better work. After the press operator has become proficient in the handling of his machine, eliminating every unnecessary movement of the hands, it may be well to place him on a piece work basis.

Forms Will Wear on Bottom First

After a flower pot form has been in operation for some time, it will begin to wear, as is to be expected. The first sign of wear usually occurs on the projection on the bottom of the form which forms the hole in the flower pot. This in time will wear down the steel of the mother form, and as a consequence the walls of the pot will gradually become thinner. This must be carefully watched, for a flower pot with a weak bottom is of no value to florists. It is not a good policy to try to overcome this difficulty by filing the knob on the bottom of the form, as this will merely have the result of pressing still farther into the mother form, and

The Letters a and b Indicate Hard Steel Bearing Surfaces to Prevent Fast Wearing and Insure Uniform Thickness of Walls and Bottom.

in consequence the walls of the pot will constantly become thinner. A much better system is to fasten a steel ring to the bottom of the lug on the former, preventing it from being pushed thru the mother form farther than the correct distance. A glance at the illustration will show what is meant. If eventually the mother form shows signs of wear, the same remedy can be applied there and a steel ring can be bolted on the top of the form. By the use of these expedients the life of the forms can be greatly prolonged.

For lubricating purposes a heavy mineral oil has been found practical. In recent years experiments with lubricating oil have been conducted by mixing them with petroleum substitutes, and in many cases good results have been obtained.

Drying Flower Pots

For drying of flower pots, unless an artificial dryer is desired, ordinary wood racks can be used.

For the burning of flower pots, all forms of kilns can be used—round down-draft, tunnel kilns, up-draft kilns, or any other style, the more modern tunnel kiln probably giving the most satisfactory results, altho being the most expensive to install. There are various methods in use of setting flower pots in the kiln. The most common form is the column setting, where one pot is set on top of the other, each pot resting on the shoulder of the pot below. Here the value of having a shoulder on the pots is forcibly brought to mind. In setting flower pots, they should never be set in kilns higher than $3\frac{1}{2}$ to four feet, as otherwise the pressure on the shoulder of the bottom pot is too great and liable to result in considerable damage. Care must be taken to have the columns exactly vertical in order to provide a solid stand for the column. The reason for this is obvious, for if one flower pot column should break it would result in considerable damage to surrounding ware. Since the columns are never more than four feet high and the kilns, on the other hand, as a rule are more than five feet and in some cases more than $6\frac{1}{2}$ feet high, this additional space must be utilized in some manner. This can be done in two ways. Either the flower pots are set on a foundation of brick, which method gives the added advantage of burning brick and flower pots together; or the bottom of the kiln can be divided into sections or chambers for the use of brick and slips of refractories. These chambers can then be filled with flower pots and the flower pot columns placed over the chambers. The refractory slips, as a rule, are about $15\frac{1}{2}$ inches long, $9\frac{3}{4}$ inches wide, and about $5/16$ inch thick.

Burning the Flower Pots

Flower pots are burned in much the same manner that other thin-walled clayware is. The most important thing to be observed in the burning is the slow cooling after the actual burning. This is necessary as rapid cooling can result in a large amount of cracked ware. The use of a draft gage and pyrometers simplifies this to a great extent.

When shipping flower pots by freight or by truck, it is customary to pack them in rolls about three feet in length and with a liberal use of straw. The rolls should always lie lengthwise to the direction in which the conveyance is moving.

* * *

BRICK RATES TO BE LOWERED OCTOBER 16

The Interstate Commerce Commission on September 5 postponed until October 16 the effective date of its order issued April 4 last governing rates on brick and other clay products, in earloads from and to all points in the United States east of the Rocky Mountains. The Commission's order originally was intended to become effective on July 12.

The order now is to become effective on the date given at not less than 15 days' notice except as provided in the Commission's order of June 5 indefinitely postponing the effective

date of the order of April 4 insofar as it affects the descriptions and rates on traffic to, from, and between points in southwestern territory and southern territory, except as provided in the following paragraph.

The Commission ordered further that its order of April 4, as subsequently modified, insofar as it affects the descriptions and rates on traffic in southern territory, namely, east of the Mississippi and south of the Ohio and Potomac rivers, should be further modified so as to become effective January 1, next year upon not less than 15 days' notice.

* * *

C. B. M. A. GAINS MANY NEW MEMBERS

Executive committee meeting of the Common Brick Manufacturers' Association was held at Detroit on August 31. It was planned to have a full board meeting, but owing to the railroad situation the meeting was confined to an executive affair.

Among other matters considered at this meeting was the remarkable growth being made by the national organization. In the last few weeks many new members have been added. Among them are:

Devonshire Brick Co., Steubenville, Ohio; Camp Brothers Co., Mogadore, Ohio; Walker & Frank Brick Co., Detroit, Mich.; Hinde Brick & Tile Co., Sandusky, Ohio; Kenton (Ohio) Brick & Tile Co.; Cook & Brown Lime Co., Oshkosh, Wis.; S. Bertler Sons and William Frick Sons Co., Manitowoc, Wis.; Casper (Wyo.) Brick & Tile Co.; Hampton (Ia.) Brick & Tile Company, Aurora (Ind.) Brick Works, N. Gladfelter & Son, Athens, N. Y.; Jova Brick Works, Roseton, N. Y.; Hutton Co., Kingston, N. Y.; Hugh Hatch, Camden, N. J.; Squirrel Hill Brick Co., Pittsburgh, Pa.; Enterprise Brick Works, Mountain View, N. J.; James B. Oberly, Wilmington, Del.; Lancaster (Pa.) Brick Co.

* * *

EBEN RODGERS ELECTED COUNCILLOR FOR A. F. B. A.

Eben Rodgers, of the Alton (Ill.) Brick Co., has been named new national councillor for the American Face Brick Association, of which he is president, to represent it in the Chamber of Commerce of the United States.

The National Council of the Chamber of Commerce of the United States consists of one representative each from the more than 1,400 commercial and industrial organizations making up the National Chamber's membership. It serves as an advisory body to the National Chamber's Board of Directors. The Council holds a special meeting preceding the annual convention of the National Chamber to pass on the program and to select a nominating committee. The councillors also act as chairmen of the delegations representing their organizations.

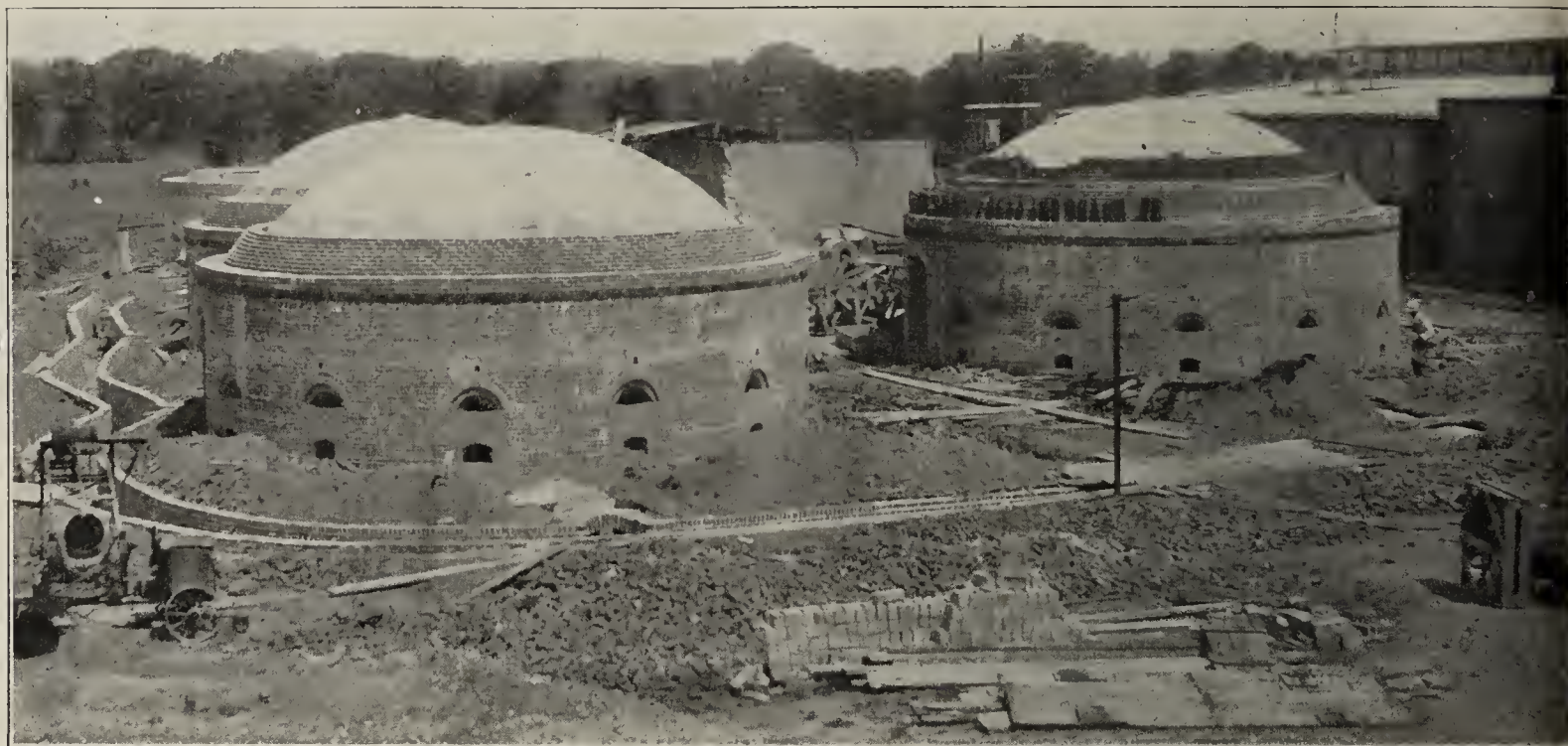
A councillor occupies a position of liaison officer between the National Chamber and his own organization on important questions.

* * *

RED GROUP OF A. F. B. A. MEETS

The Red Group of the American Face Brick Association of which J. M. Adams, general manager of the Ironclay Brick Co., is chairman, met at the Athletic Club, Columbus, Ohio, September 13, with a good attendance. Questions discussed were wages and traffic. It was reported that advances in wages are being made in many localities and that in all likelihood another era of higher wages is upon the industry. Reports showed that there is a growing shortage of labor among the plants in all sections which is the main cause for the higher wage scales. The shortage of labor is attributed partly at least to the present immigration laws.

The Minter System Provides Plant Betterment

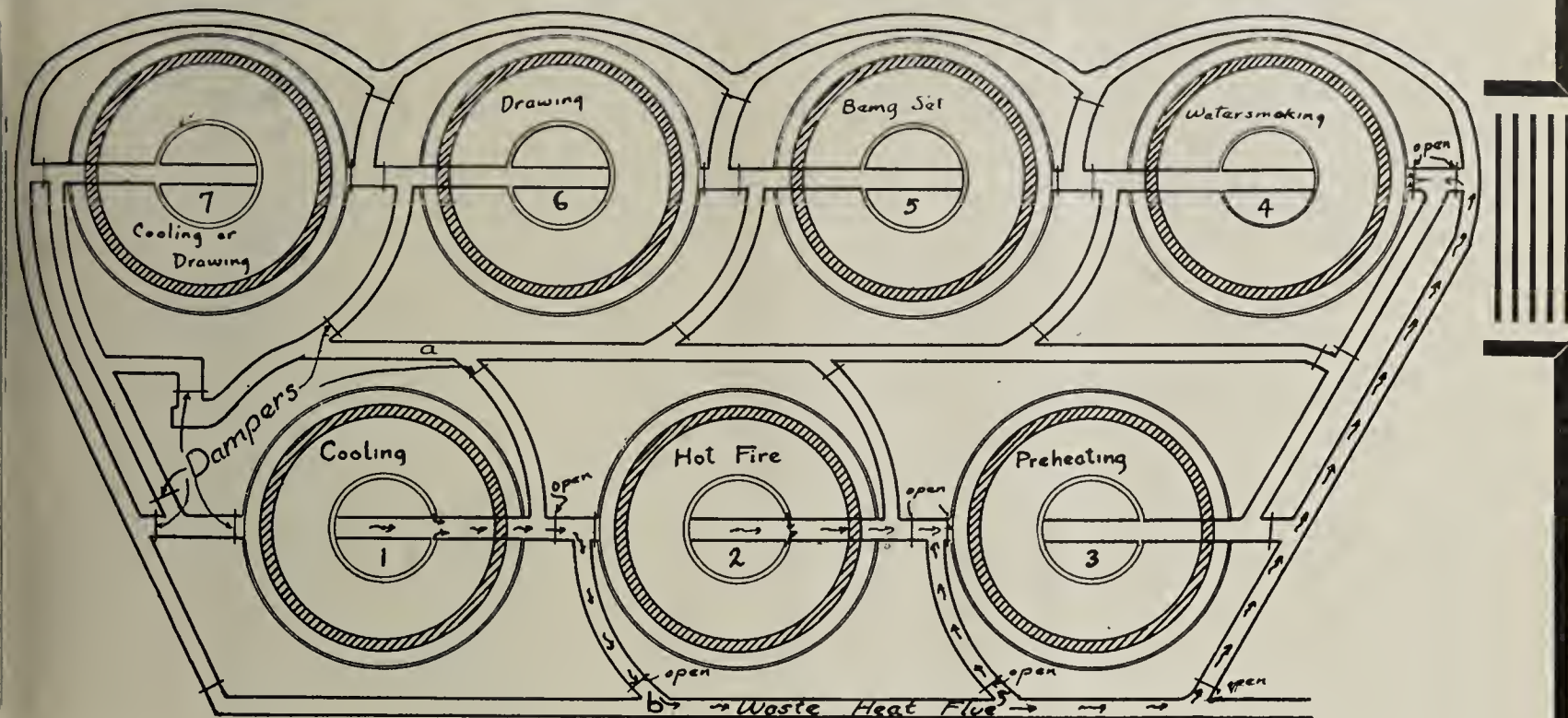


A Good View of Minter Kilns and Flue System Under Construction. The System Will Work Practically as Well on an Old Plant as on a Plant Specially Built to Operate According to It.

1. **First Cost**—Any capacity of quality ware can be produced with much smaller initial cost.
2. **Better Quality**—The quality of the ware is higher, and there is less loss. The sales per unit, therefore, will be larger.
3. **Fuel Saving**—There is an enormous saving in the consumption of fuel. This is a very important item, and will be important for a long time to come.
4. **Dryer Economy**—All of the advantages to be gained by using waste heat are gained by the Minter System. There is a wonderful saving of fuel resulting therefrom, and the ware can be bonedry when set in kiln. Kiln losses, therefore, are negligible.

Minter

s Four Distinct d Cost Reducing Features



In a Loop, Single Line or Triangle—Any Number of Kilns Above Three.

The Minter System is a development of the continuous principle of heat utilization to round down-draft kilns, and effects all of the economies of the continuous system without the large investment that is necessary.

Again, the Minter System can be adapted to a present installation of round down-draft kiln, giving all the advantages found in a new installation.

In addition, the waste heat not used in the kiln system is taken to the dryer for thoroughly drying the green ware, and preparing it for setting, so that the least possible amount of fuel will be used in the burning and the loss will be at the minimum.

The Citadel Brick & Paving Block Co., Ltd., of Canada, saved \$5,328 per month as a result of the installation of the Minter System. This plant uses 503½ pounds of coal per thousand brick, for drying and burning.

The Dixie Brick Co. of Columbus, Ga., uses 520 pounds per thousand for drying and burning face brick.

No other installation of round down-draft kilns can approach these extremely low costs for burning or produce better ware.

Improve your Quality—Increase your Output—Reduce your Costs
WITH

T H E M I N T E R S Y S T E M

"Real Economy"

Albany

GEORGIA

Columbus

Systems

FINE CERAMIC MANUFACTURE



A Department Devoted to Practical Problems in the Manufacture of Higher Grade Ceramic Products Such as Whiteware, Including Electrical Porcelain, Floor and Wall Tile, Sanitary Ware, etc., as Well as Stoneware, Terra Cotta, Special Refractories and Other Articles Where High Grade Clays Are Employed in Their Fabrication.

APPROVE REVISED TARIFF BILL

REVISION BY THE SENATE of the House Tariff Act has thrown a greater mantle of protection over the ceramic industry of the United States than when the bill was received from the House in its original form. The figures as given below have been approved by both the Senate and the House and will undoubtedly become law.

Those parts in the schedule passed by the Senate August 19, which are of interest to manufacturers of fine ceramics, are reprinted herewith. In all the items mentioned in the following paragraphs tariff revision has been upward.

Par. 201. Bath brick, chrome brick, and fire brick, not specially provided for, 25 per centum ad valorem; magnesite brick, three-fourths of 1 cent per pound and 10 per centum ad valorem.

Par. 202. Tiles, unglazed, glazed, ornamental, hand painted, enameled, vitrified, semi-vitrified, decorated, encaustic, mosaic, flint, spar, embossed, gold decorated grooved or corrugated and all other earthenware tiles and tiling by whatever name known, except pill tiles and so-called quarries or quarry tiles, red or brown, and measuring seven-eighths of an inch or over in thickness, but including tiles wholly or in part of cement, valued at not more than 40 cents per square foot, eight cents per square foot, but not less than 45 nor more than 60 per centum ad valorem; valued at more than 40 cents per square foot, 50 per centum ad valorem; mantels, friezes, and articles of every description or parts thereof, composed wholly or in chief value of earthenware tiles or tiling, except pill tiles, 50 per centum ad valorem; so-called quarries or quarry tiles, red or brown, and measuring seven-eighths of an inch or over in thickness, 3 cents per square foot, but not less than 30 per centum ad valorem.

\$1 Per Ton on Clays

Pa. 207. Clays or earths, unwrought or unmanufactured, including common blue clay and Gross-Almerode glass pot clay, not specially provided for, \$1 per ton; wrought or manufactured, not specially provided for, \$2 per ton; china clay or kaolin, \$2.50 per ton; bauxite, crude, not refined or otherwise advanced in condition in any manner, \$1 per ton; fuller's earth, unwrought and unmanufactured, \$1.50 per ton; wrought or manufactured, \$3.25 per ton; silica, crude, not specially provided for, \$4 per ton; silica, suitable for use as a pigment, not specially provided for, \$7.50 per ton; glass sand, containing 99 per centum or more of silica, \$1.50 per ton; fluorspar, \$5.60 per ton.

Par. 210. Common yellow, brown or gray earthenware made of natural, unwashed, and unmixed clay, plain or em-

bossed; common salt-glazed stoneware; stoneware and earthenware crucibles; all the foregoing not ornamented, incised, or decorated in any manner, 15 per centum ad valorem; ornamented, incised, or decorated in any manner and manufactures wholly or in chief value of such ware, not specially provided for, 20 per centum ad valorem; and Rockingham earthenware, 25 per centum ad valorem.

Earthenware and Crockery Raised to 45 Per Cent.

Par. 211. Earthenware and crockery ware composed of non-vitrified absorbent body, including white granite and semi-porcelain earthenware, and cream-colored ware, and stoneware, including clock cases with or without movements, pill tiles, plaques, ornaments, toys, charms, vases, statues, statuettes, mugs, cups, steins, lamps, and all other articles composed wholly or in chief value of such ware; plain white, plain yellow, plain brown, plain red, or plain black, not painted, colored, tinted, stained, enameled, gilded, printed, ornamented, or decorated in any manner, and manufactures in chief value of such ware not specially provided for, 45 per centum ad valorem; painted, colored, tinted, stained, enameled, gilded, printed, ornamented, or decorated in any manner, and manufactures in chief value of such ware, not specially provided for, 50 per centum ad valorem.

Vitrified Ware Raised 25 Per Cent.

Par. 212. China, porcelain, and other vitrified wares, including chemical porcelain ware and chemical stoneware, composed of a vitrified non-absorbent body which when broken shows a vitrified or vitreous, or semi-vitrified, or semi-vitreous fracture, and all bisque and parian wares, including clock cases with or without movements, plaques, pill tiles, ornaments, toys, charms, vases, statues, statuettes, mugs, cups, steins, lamps, and all other articles composed wholly or in chief value of such ware, plain white, or plain brown, not painted, colored, tinted, stained, enameled, gilded, printed, or ornamented or decorated in any manner, and manufactures in chief value of such ware not specially provided for, 60 per centum ad valorem; painted, colored, tinted, stained, enameled, gilded, printed or ornamented or decorated in any manner, and manufactures in chief value of such ware not specially provided for, 70 per centum ad valorem; any of the foregoing articles containing 25 per centum or more of calcined bone, not painted, colored, tinted, stained, enameled, gilded, printed, or ornamented or decorated in any manner, 50 per centum ad valorem; painted, colored, tinted, stained, enameled, gilded, printed, or ornamented or decorated in any manner 55 per centum ad valorem.

Par. 231. Smalts, frostings, and all ceramic and glass colors, fluxes, glazes, and enamels, all of the foregoing, ground or pulverized, 30 per centum ad valorem; in any other form, 40 per centum ad valorem; opal, enamel or cylinder tiles, tiling, rods, 40 per centum ad valorem.



ENGLISH BID STRONG FOR U. S. BUSINESS

The English potters are anxious to make up for the holiday stagnation and to this end they are boosting production and

endeavoring to strengthen their hold on the foreign pottery markets. They are somewhat bothered about the United States market. After a very pleasing demand from that quarter business has slumped considerably, the export houses say. The hopes of the export houses are now centered on a renewal of the pottery demand from the U. S. A., which is a vitally important factor in the activities of some of the biggest pottery houses there. As a fillip to the much coveted American business, the potters there are offering many new patterns and shapes which are admittedly attractive. In fact, the urge there now for new and unconventional designs and shapes as a sop for American buyers of British pottery is insistent, and the designers are kept mighty busy justifying their pay.

There are again substantial pottery shipments to Australasia while business with Canada is on the upgrade. The jet and rockingham (teapot) trade is in the dumps still with no immediate signs of improvement. In the electrical porcelain industry today the chief bug-bear is German competition. This is causing no little uneasiness among the porcelain people there. German competition in this particular branch of the industry is getting keener than ever and the quality of the Fatherland goods when considering the prices quoted is disconcerting to the manufacturer there.

* * *

1921 POTTERY WORTH \$1,900,000

The report of Walter H. Bradley of the California State Department of Statistics shows that the production of brick for 1921 in that state more than doubled, and that 1922 will show another surprising increase. The value of pottery products last year increased to \$1,900,000 and the figures of 1922 will show an amazing increase in this demand, especially in the southern part of the state. There has been some difficulty in locating good pottery clays, but persistent effort has brought good results. While it is hard to find pottery clays as good as the English, yet California has building clays equal to the best. The wonderfully increased demand for hollow tile, pressed brick, terra cotta, and so forth, has led to the development and perfection of splendid materials.

* * *

ART POTTERY REQUIRES LARGER QUARTERS

Weidig's Art Pottery Co. of New Orleans, La., will move to new quarters at 3619 South Carrollton Avenue about September 25. Additional machinery will be added to manufacture semi-marble pottery in larger quantities, a product which is meeting with much favor. The output of garden furniture will also be enlarged considerably. A complete line of designs will be displayed in the new location.

* * *

ENAMEL PRODUCTS CONCERN ORGANIZED

The New York Vitreous Enamel Products Co., New York, N. Y., has been organized under Delaware laws, with a capital of \$300,000, to manufacture vitreous enamel ware, ceramic products, and so forth. The company is represented by the United States Corporation Co., 65 Cedar Street, New York.

* * *

NEW ART POTTERY FOR NORTH CAROLINA

The Felstone Co. has been incorporated at Asheville, N. C., with a capital of \$100,000 and will manufacture urns, vases, and so forth. The incorporators are Marshall Gravatt, Gustave C. Reininger and Blair Taylor.

* * *

ART TILE TO BE MADE IN BROOKLYN

The Hamilton Art Tile Works, Brooklyn, N. Y., has been incorporated for \$5,000 by D. and H. Mackler, and R. Pede-

villano, according to a report. H. Chertkoff, 66 Bay 35th Street, Brooklyn, is the attorney.

* * *

ENGLISH WILL MAINTAIN HIGH WAGES

By Special Foreign Correspondent

This is the season of holidays in the pottery districts of England. The annual Stokes Wakes vacation commences this month. This generally means a slowing down in production with slightly increased unemployment. The usual autumn revival, however, is expected to follow the vacation period. Just now unemployment has increased from 12 to 18 per cent. owing to the fact that most factories are closed for the two to three weeks' vacation term. Out of approximately 50,000 pottery operatives some 8,970 are not working at all. Indeed at present the industry is practically at a standstill but this, of course, is temporary. Most of the operatives employed stopped work the last part of August for holidays in England are traditional and therefore sacred, and must not be passed over on any account.

The manufacturers admit the inadequacy of the pre-war trade pay due to internal, as much as foreign, competition. In fact, for some time they have been dropping money heavily on such lines as white and gold tea services which have been cut to a price involving definite and continuous loss. But these prices have been maintained with a view to selling with them other lines giving a more robust profit. The trade has no desire to return to a pre-war state either as regards wages or prices. And the manufacturers have long since been convinced that pre-war pottery was too cheap.

During the vacation session the potters are scheming how to increase their output of general pottery lines. It is now becoming more obvious in the English pottery industry that those firms limiting themselves to just a few lines are not only obtaining a better average standard of quality but are producing more economically and gaining valuable prestige for their particular specialty. With this policy of limited lines there is less internal competition, the potters say, with consequent improved trade results. The firms remaining busiest during the period of acute depression in the industry were those specializing in high class goods and the trade, as a whole, is learning its lesson from that fact.

* * *

CRESCENT TO START WORK ON NEW PLANT

The Crescent China Co., Alliance, Ohio, an interest of the Sebring Pottery Co., Sebring, Ohio, has work under way on its proposed new local plant recently announced, to consist of a number of buildings, covering a ground area about 140x700 feet, and 7 kilns. It is planned to commence the equipment installation as soon as the buildings have progressed sufficiently.

* * *

WILL BUILD PLANT IN NEW YORK

The New York Vitreous Enamel Products Co., a Delaware corporation, has filed notice of organization to operate in New York, with a capital of \$100,000, for the manufacture of enameled clay products. The company is represented by J. R. Greenwood, 66 Myrtle Avenue, Queens, N. Y.

* * *

SNEYD MAINTAINING PRODUCTION

The Sneyd Enameled Brick Co., Trenton, N. J., is maintaining active production at its plant, giving employment to the regular working force. In addition to its regular fire brick manufacture, the company will make a feature of its high-grade enameled brick in different colors during the coming months.

The Superintendent

Helpful Hints for Practical Men
Whose Problem is Maximum
Production with Minimum Cost

HOMEMADE OIL SEPARATOR

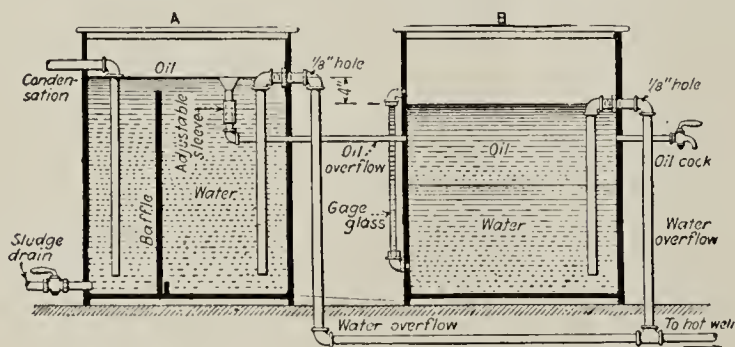
In many plants there are a number of low-pressure traps discharging hot water heavily laden with oil. Usually, both the water and oil are wasted unless the installation is of sufficient size to justify the installation of a filter and purifier, in which case the heat in the water is recovered and the oil may be used again for certain purposes.

At small expense an oil separator can be made from two tanks or barrels and some pipe fittings, which will speedily pay for its cost in the saving of cylinder oil alone, besides adding materially to the hot water supply.

Such an installation is shown. The operation is as follows: The oil-bearing hot water comes from the traps into the tank A, where some separation takes place and the oil rises in the current of water and passes over the baffle. The funnel opening is just even with the water level in this tank, so that the agitation caused by the incoming water splashes the top layer of oil and water into the funnel and thence into the pipe leading to the storage tank B. The remainder of the water in tank A passes out thru the siphon pipe from the bottom and carries no oil to the hot well. A hole is drilled at the upper end of this pipe to prevent siphoning out too much of the water at once.

The oil overflow carries some water over into the tank B, where the oil remains in a strata at the top and the water passes out thru a siphon pipe similar to that in tank A, but smaller. Both siphon pipes should be large enough so that at no time is it necessary for them to be more than half full.

The oil level should be watched in the glass and some drawn off before the gage fills; otherwise the action of the



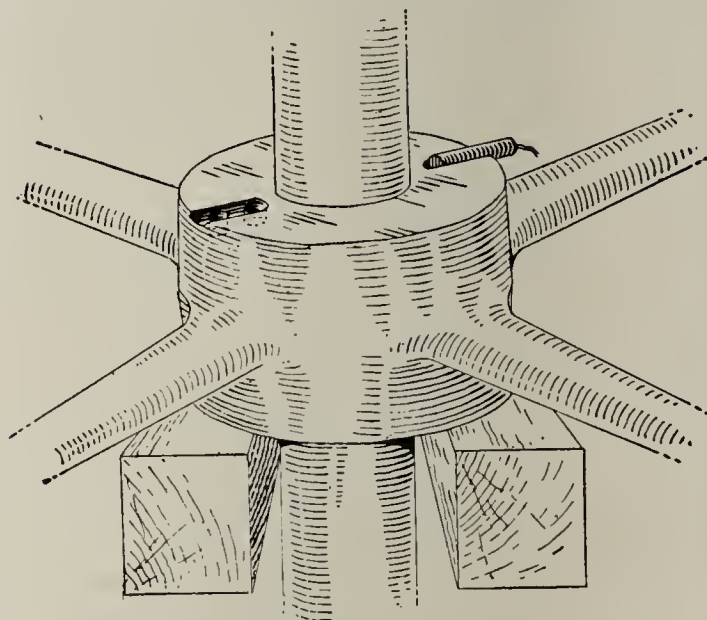
Details of Construction of Homemade Oil Separator.

system is automatic. This salvaged oil is usually of good quality and may be used again for many lubricating purposes or even for steam-cylinder work if filtered.—D. R. Shearer, in Power.

DYNAMITE ASSISTS IN MOVING PULLEYS

The removal of pulleys with solid cast iron hubs is often a difficult and almost impossible job, especially where the pulley has been in use for a number of years and has practically frozen or rusted onto the shaft. The accompanying sketch shows the method of removing a pulley in a case of this kind with small charges of dynamite. If these charges are placed carefully there is no danger of damaging the shaft. In case the pulley is to be discarded entirely and it is not intended to use it in another location, it is easy to crack the flange and remove it in sections. If, however, it

is simply desired to move it on the shaft, these dynamite charges should simply crack the hub in two pieces, and it may be possible to place it in a new location with clamps that will make it function as a solid hub. The two holes shown in the sketch were drilled one inch in diameter and



Location of Dynamite Sticks for Cracking Flywheel.

two inches deep, and a notch cut in the metal over the holes. One-half stick of dynamite was placed on each notch, and both charges fired simultaneously. The hub was cracked along the lines of the charge, without injury to the shaft.—From Power.



NO BRICK SHORTAGE IN ST. LOUIS

There is no danger of a shortage of brick in St. Louis or vicinity, nor any other good reason why building operations should not proceed uninterruptedly in the opinion of F. C. Aschemeyer, sales director of the Hydraulic-Press Brick Co. of St. Louis.

He pointed out that while some smaller producers are temporarily out of stocks thru inability to obtain an adequate fuel supply their orders have been filled by the Hydraulic, which Aschemeyer said is in a position to continue doing so as long as desired.

The Hydraulic had stocked fuel in anticipation of the continuation of the coal and rail strikes, and while it has not received a shipment of coal for many weeks it has not been compelled to curtail operations.

Aschemeyer takes issue with some labor leaders who attempted to blame delay in large construction projects to material prices. He stated that common brick has gone up but \$1 a thousand since April or about five per cent., while high-grade brick have advanced about 15 per cent., due to high cost of fuel.



300 AMERICANS TO BE AT ROME MEETING

From 200 to 300 American business men will be in attendance at the second annual meeting of the International Chamber of Commerce, according to present indications. This meeting will be held in Rome, Italy, March 18-24, 1923.

Questions and Answers

Best Authorities in Every Clay Working Branch Are Called Into Consultation—Their Advice Is Free to You, Thru These Columns

Address all communications intended for this department to "Editor Questions and Answers, care of Brick and Clay Record," Chicago

WHAT IS THE BEST WAY TO SORT BRICK?

1,052. *Ohio—We would like very much to have your opinion and that of a number of your readers who will be kind enough to give theirs on the best method of sorting brick from the kiln to get the best results in uniform shading.*

We have tried several methods but we are not entirely satisfied, altho we have several careful and conscientious men doing the work. At present we use one sorter to two wheelers in the kiln and one outside shader to three crews. Our product is a hard burned red shale face brick. There is lots of life to the color but it appears difficult to shade. We use the ordinary barrow, hauling 100 brick to the load.

We will be glad to receive any information along this line from any of our readers to pass on to the party who sent in this inquiry.

In the Wake of the News

**Being Brief Mention of a Host
of Interesting Happenings in the
Varied Fields of Clayworking**

PHILIP STROP, 82 YEARS OLD, DIES

Philip Strop, 82 years old, retired brick manufacturer and one of the oldest residents of St. Joseph, Mo., died at the home of his son, Judge Charles F. Strop, recently. Mr. Strop had been in feeble health for several years, due to the infirmities of old age but he had been seriously ill only three days before his death. He was well known among the old residents of St. Joseph.

E. B. OLDHAM DIES IN ACCIDENT

News was received from Milwaukee, on August 28, of the death there of E. B. Oldham, 670 North Broadway, Lexington, Ky., who died at the Trinity Hospital, Milwaukee, of injuries received the previous Sunday, when a machine in which he was a passenger collided with two other machines near South Milwaukee. Mr. Oldham was connected with the Oldham Brick & Tile Co., Lexington, and was attending a meeting of the tile manufacturers.

F. R. MILLER, CANADIAN CLAY MAN, DIES

Fred R. Miller, president of Clayburn, Ltd., brick, tile and fire brick manufacturers with plants at Clayburn and Kilgard, B. C., died at Toronto on August 29, aged 43 years. During the late war Mr. Miller was in charge of the Toronto district for the production of munitions for the Imperial Munition Board, and was vice-president and general manager of the British Forgings, Ltd. In July, last



You Can Save Labor

The One Man Excavator makes possible a saving of from 6 to 12 men in the pit. It digs clay in any weather in sufficient quantities to fill the requirements of any plant of 25M to 100M capacity.

Furnished with wheel traction or caterpillar tread—gasoline or electric power.

Write for details

The Bay City Dredge Works
Bay City, Mich.



UNLOAD YOUR COAL

WITH

Fairfield Coal Handling Machinery

SAVES TIME

SAVES MONEY

SAVES LABOR

ONE MAN WITH A FAIRFIELD CAN UNLOAD MORE COAL THAN
20 MEN BY HAND

THE FAIRFIELD ENGINEERING CO.
LANCASTER, OHIO



SAVED

**56 to 90 hours per kiln,
10 to 12 tons of coal per kiln,
15 to 20% more firsts—**

*Let us prove just such savings as
this to you at our own expense*

The Brown Instrument Company
4503 Wayne Avenue Philadelphia, Pa.

Brown Pyrometers
Most used in the world

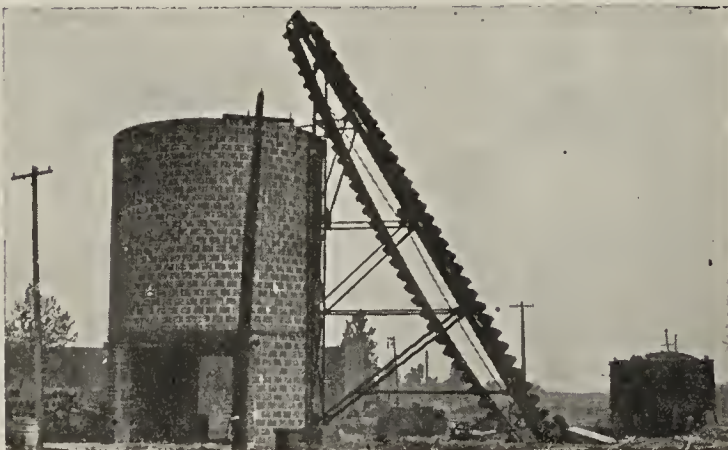
SUNBURY

AUTOMATIC CAR UNLOADER

Loads or unloads coal at the rate of 30 to
50 tons every hour. Only one man needed.

*Let us tell you what other clay plant
operators are doing with the Sunbury
in saving time, money, and labor.*

The Sunbury Manufacturing Co.
Sunbury, Ohio



year, he was appointed to the Hydro Electric Commission of Ontario and to the Toronto Transportation Commission. Mr. Miller was keenly interested in sports, especially motor boat racing, and last year won the International Gold Cup trophy at Toronto.

AGED BRICK MANUFACTURER DEAD

Daniel E. Gilbert, a retired brick manufacturer of Philadelphia, died August 15 at the home of his son-in-law in Frankford. Mr. Gilbert was 86 years old, and is survived by his wife and one daughter, two sisters and a brother.

RETURNS FROM EASTERN TRIP

C. O. McNamee of the Fulton (Mo.) Fire Brick Co. has returned to Fulton from a business trip of several weeks in the East.

FROM NEW MEXICO TO PENNSYLVANIA

J. E. Secrest, who has had charge of the Ancho Brick Co. plant at Carrizozo, N. M. for the past year, has left for Pennsylvania to accept a similar position.

HOWARD STARTS WORK AT WELLSVILLE

H. H. Howard of Chicago has arrived at Wellsville, Mo., and has entered upon his duties as general superintendent of the Wellsville Fire Brick Plant. T. F. Smith also has begun his duties as yard superintendent.

WILL HANDLE ROCHESTER PLANT SALES

M. G. Babcock, formerly of the Pittsburgh office of the Laclede-Christy Co., whose headquarters are at St. Louis, Mo., has been transferred to their Rochester, Pa., plant, to handle the sales of all glasshouse refractories manufactured there. Mr. Babcock's territory will comprise all pot glass manufacturers in the United States and Canada.

JOHN MILLAR AND WIFE VISIT TORONTO

Mr. and Mrs. John Millar motored from Mission City to Toronto, where they will spend two or three months. Mr. Millar was formerly works manager of the Don Valley Brick Works, but for some years has been interested in two British Columbia plants, at Clayburn and Kilgard. J. W. Ball, formerly of the Russell Shale Brick Co., is manager. At Kilgard a line of fire brick is made and an exhibition was made at the Canadian National Exhibition, Toronto. It was in charge of Roy Millar.

ERWIN TOEPFER ENTERTAINS CONTRACTORS

Contractors from Milwaukee, West Bend and other eastern Wisconsin cities, were entertained recently by Erwin Toepfer, president of the Acme Brick Co., of Barton, Wis. Mr. Toepfer took the delegation to Lucas' Resort for a picnic and old-time fish fry, which unusual treat was highly enjoyed.

MATTHEWS TO ORGANIZE OWN COMPANY

W. T. Matthews, who has been sales manager and superintendent in charge of production with the Claycraft Brick Co., of Columbus for a number of years, resigned, effective September 1, to organize a company and take over the plant and property of the Columbus Brick & Terra Cotta Co., at Union Furnace, Ohio. Plans for taking over this company have not been completed as yet. Paul Hodges, who has been connected with the Marble Cliff Quarries Co. for a number of years in various capacities, has been made assistant manager of both the Claycraft Brick Co. and the Marble Cliff Quarries Co., which are controlled by the same

interests. In that capacity he will have charge of production in both concerns. George G. Cowman, who was assistant sales manager of the Claycraft Brick Co., has been made sales manager.

E. E. AYARS TRANSFERRED TO JOLIET

E. E. Ayars, formerly superintendent of the Danville, Ill., and Devils Lake, Wis., plants of the American Refractories Co., became superintendent of the Joliet, Ill., plant of this concern on September 9. Mr. Ayars fills the vacancy caused by the resignation of G. L. Austin.

T. M. McVEY JOINS U. OF I. CERAMIC STAFF

T. M. McVey has joined the staff of the University of Illinois Ceramic Department as an instructor. Mr. McVey graduated from the University of Illinois in 1914. From June of that year until April, 1915, he was employed on some special work which was being carried on in the department.

Subsequently he was Asst. Superintendent of the Clinton (Ind.) Paving Brick Co. Then he went to the Streator (Ill.) Brick Co., where he remained for about 2½ years, and later was connected with the Basic Products Co., of Kenova, W. Va. More recently he was with the Lacon (Ill.) Clay & Coal Co., as superintendent of the plant.

Mr. McVey has contributed the following articles to this journal:

"The Construction and Operation of a 36 Foot Round Face Brick Kiln," and "Getting Better Burns and Saving Coal with the Pyrometer."

BIRMINGHAM PLANTS OPERATING 100 PER CENT.

Birmingham (Ala.) brick and clay products manufacturers have as many orders as they can fill, and their plants are being operated at 100 per cent capacity.

The only trouble clay manufacturers are experiencing now is the lack of freight cars for the movement of their products to various parts of the country, and the lack of cars for the transportation of coal to their plants there. If there is no relief from car shortage within the next few weeks some plants may be forced to close down.

TARIFF LAWS HINDER CUBAN TRADE

The manager of the Birmingham (Ala.) Clay Products Co. said: "We are swamped with orders and our plant is being operated at capacity right along, but owing to the shortage of cars we are able to move only about 30 per cent. of our output. We have a number of big orders from practically every section of the South.

"We have shipped some orders of our products to Cuba and could build up a good trade with that country if it were not for the tariff laws which exist in the United States and in Cuba as well, as regards the shipment of our products there. There is so much red tape attached to these tariff laws that it requires too much time and trouble to get an order thru to Cuba."

1,800,000 BRICK WAIT FOR CARS

Mr. Hays, manager of the S. P. Brick Co. of Exeter, Cal., declares that it is no fault of theirs if there is a shortage of brick. They are now turning out 50,000 per day, and have 1,800,000 ready for transportation as soon as means of transport is provided.

STARTS WITH 800,000 KILN CAPACITY

The Vitriified Products Corporation, with offices in the Spreckles Building, San Diego, Cal., incorporation of which was previously announced, has established a plant at Old



Ability to Meet Every Demand

The Marion Rust Special Feeder Mixer will meet every demand you can make of it. It will thoroughly mix and temper your clay and save the labor of 3 or 4 men. It will keep your offbearers busy, and never need repairs. Details sent on request

MARION MACHINE FOUNDRY & SUPPLY COMPANY

P. O. Box 395

Marion, Indiana

Don't Allow Anything of Tangible Value to Go to Waste

Haven't you some machinery or equipment around your yard that somebody else could use to advantage?

You owe it to them to let them know about it, and you might just as well have the money that is tied up in it.

Or maybe there is something you need, and which another one of our readers could supply.

In either case a Classified Ad in BRICK AND CLAY RECORD will bring the desired result.

The rate is eight cents per word for one insertion, and six cents per word for each additional Insertion. Minimum charge, \$1.00.

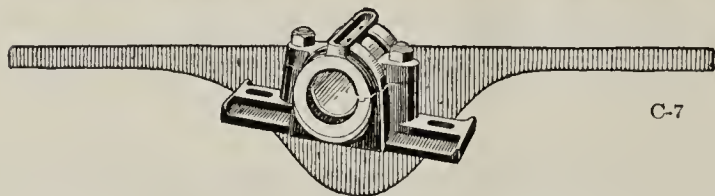
TRANSMISSION MACHINERY

THE Caldwell line is complete. Bearings — heavy, properly designed, and well finished. Pulleys of ample weight and accurately turned. The entire line has achieved outstanding recognition under hard service. Let us figure on your requirements.

H. W. CALDWELL & SON CO. LINK-BELT COMPANY, OWNER

Dallas, Texas, 709 Main St.—Chicago, 17th St. and Western Ave.—New York, Woolworth Bldg.

CALDWELL



Increase the value of your product by improving
the color with

LAVINO BRAZILIAN MANGANESE

"Best for Face Brick"

Economical
Adaptable to any Clay
Intense Staining Powers
Various Effects Obtainable
Uniform Analytically and Physically

Liberal samples and full information
gladly furnished upon request.

E. J. LAVINO and COMPANY

Bullitt Building Philadelphia, Pa.

Grinding Plant: Plymouth Meeting, Pa.

Town within a half mile of the new pier, and will produce both for home use and for water shipment. They are starting with four kilns of 200,000 capacity each for the burning of common building brick. To this they plan to add eight more kilns of the down-draft type, 32 feet in diameter. Sewer pipe, drain tile and vitrified paving brick will be made later.

TOO MUCH WOOD IN CENTRAL CALIFORNIA

From the reports of yard activity, and the way the office forces seem buried in business too deep to talk, it is very evident that the brick and clay industry in California has been enjoying the most prosperous period of its existence. With the sudden building boom of the last year and the rapidly increasing demand for hollow tile and terra cotta, existing plants have been taxed to their utmost, and in sections there have been severe complaints that building has been delayed for lack of brick and tile. With an abundance of big trade, of big orders to fill, and the inevitable result that all the trade bends its energies to securing these, it is but natural that little attention should be given to the development and extension of the demands of smaller trade for brick and clay materials. As a result, central California has gone on building thousands of homes of wood, and of expensive wood, much of poor quality, and with dimensions so economized as to render the structures flimsy. As a result there is opportunity wide open for some live wire contractors, backed by some wide awake producer. It is a field in which perhaps may be required more detailed activity, more attention to details, yet a field capable of large, indefinite and continuous expansion.

WILL CONSTRUCT SEWER PIPE PLANT SOON

F. A. Costello, of the California Pottery Company, calls attention to the fact that for a number of years very little large sewer work has been done in the state of California. While there has been remarkable building and remarkable growth, this has nearly all been confined to areas already provided with sewage facilities. But population, building and growth is pushing beyond the capacity of the present systems, and also into new territory that will soon have to be cared for. For this reason the company expects to construct at its plant at Merced a separate unit for the making of drain pipe, sanitary sewers, irrigation pipe, and so forth. While they are preparing to double the capacity of the plant at Merced, it looks now, with the wonderful development of the San Joaquin Valley, as if they would have to increase their kilns to 12 in the near future. This valley they look on as their special field. They have at their plant a 50 acre supply of wonderful clay which is almost inexhaustible, and some other holdings, besides, including 270 acres of excellent shale in Calaveras County. They are now operating with the most up-to-date equipment, and are sending out a carload a day, but cannot begin to supply the trade. As soon as the new units they are now working on are completed, they will increase the working force from 30 to about 200, and endeavor to keep up with the demand.

CLAY MEN AT DENVER MARKET WEEK

During the last week of August Denver, Colo., business firms held their annual Market Week with hundreds of business men from all parts of the Rocky Mountain region in attendance. Among the firms contributing to the success of the week were the following: The Denver Fire Clay Co., the Denver Terra Cotta Co., and the Western Pottery Co.

REPAIRING DAMAGE CAUSED BY FIRE

Repairs are being made to the plant of the Merwin Brick Co. at Berlin, Conn., which was recently damaged by fire. Most of the damage was done to the engine house.

WILL OPERATE TWO MORE PLANTS

The Rome (Ga.) Fireproofing Co., formerly known as the Old Rome Brick Co., has recently been purchased by the B. Mifflin Hood Brick Co., of Atlanta, and will be immediately enlarged and remodeled for the manufacture of hollow building tile. About \$75,000 will be invested for the purpose.

While the company is not as yet ready to announce the definite details of the project, it has been announced by the Hood Co. that this concern will shortly establish a plant for the manufacture of impervious light face brick of a high grade quality, that will be the only plant of this nature in the southern territory, the company states. A site has already been decided upon and definite details will be later announced.

PLANTS CLOSE, CAN'T SHIP

Several of the larger brick plants in the southeastern territory have been compelled to shut down, due to the fact that brick yards at the plants are now stored to capacity with millions of brick which cannot be shipped on account of the car shortage. There has been considerable improvement, however, in the car situation since the first of September, and most of the manufacturers in Atlanta state that they believe the industry will be able to resume in almost full force before the end of the month.

Shipments cannot be obtained from northern points within 40 to 60 days at the best, but interstate shipments in the South have been getting steadily better every day and more brick are moving now than at any time since the first effects of the car shortage were felt. In the larger railroad yards over the district there were hundreds of carloads of brick on side tracks two weeks ago, but the number is believed to have been reduced 20 to 25 per cent. since September 1.

It is the opinion of the leading brick manufacturers of the Atlanta, Ga., section when the car situation becomes normal again the industry will experience one of the greatest periods of prosperity in its history. Most of the plants now are months behind in orders, and will have to keep going at capacity all fall and winter to catch up with orders on hand.

ILLINOIS BRICK TO RESUME DIVIDENDS

The Illinois Brick Co. of Chicago is operating its various plants at capacity to supply the heavy demand in the Chicago district. It is predicted that the company will resume dividend payments next October. A six per cent. rate would meet present expectations.

* * *

The Allis Brick Co. of Chicago has been dissolved, according to a press notice.

TERMINATES MANY MONTHS' SHUT-DOWN

The Purington Paving Brick Co. of Galesburg, Ill., reopened its plant on August 30 after a period of idleness which began last Thanksgiving. It is reported that the stock of paving brick has been depleted, and many orders are on hand.

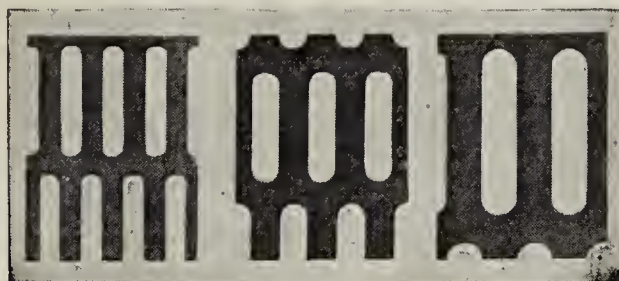
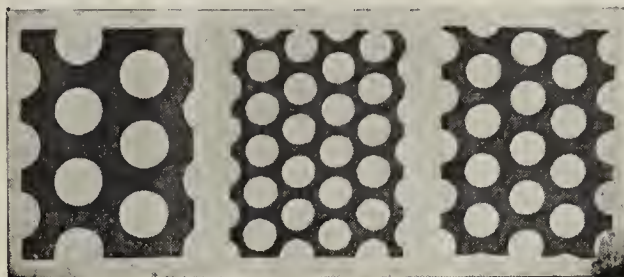
HYDRAULIC-PRESS BUYS CHICAGO TRACT

The Hydraulic-Press Brick Co. has purchased 50,000 square feet of land east of the Chicago, Milwaukee & St. Paul Railroad at Belmont Avenue, Chicago, and will operate a materials yard on this location, which was formerly a coal yard. The purchase price was \$40,000.

SPRINGFIELD PLANTS AGAIN RUNNING

The Springfield (Ill.) Paving Brick Co. probably set a record for resumption of work following the settlement of the coal strike. No sooner were the blasts of the mine whis-

Perforated Steel Screens



For Screening Clay, Shale, Sand, Gravel, Stone and Cement

All sizes and shakes of holes in metal of proper thicknesses to give the best screening results.

Sheets furnished flat or rolled to shape for revolving screens.

THE HARRINGTON & KING PERFORATING CO.

635 N. Union Ave., Chicago, Ill.

NEW YORK OFFICE: 114 Liberty St.

WOULD YOU LIKE TO MAKE BETTER BRICK ?

USE R. & H. PRECIPITATE CARBONATE OF BARIUM TO PREVENT SCUMMING AND THEREBY PRODUCING BRICK THAT ARE RICHER AND DEEPER IN COLOR, CLEANER AND CLEARER IN APPEARANCE.

IF YOU ARE TROUBLED WITH SCUMMING, WRITE US TODAY FOR CIRCULAR.

THE
**ROESSLER & HASSLACHER
CHEMICAL CO.,**

NEW YORK

CHICAGO
BOSTON
PHILADELPHIA

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NEW ORLEANS
PITTSBURGH

KANSAS CITY
CLEVELAND
SAN FRANCISCO

ATLANTA, GA

BALTIMORE, MD.

BOSTON

DETROIT

PITTSBURGH, PA



SAN FRANCISCO

PHILADELPHIA

MORSE Silent Chain Drives are 98.6% efficient for small or large drives. No worry about belt trouble, slippage of power and loss of production where Morse Chain Drives are installed.

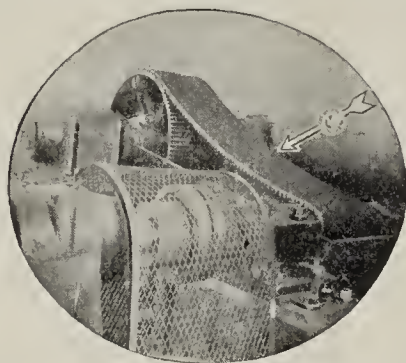
Write us if you have a transmission problem. We give engineering service without any obligation.

Drop a Card to the Nearest Morse Engineer

MORSE CHAIN CO.

Largest Manufacturers of Silent Chains in the World

ITHACA, NEW YORK



MONTREAL

MINNEAPOLIS

NEW YORK CITY

CHARLOTTE, N. C. CHICAGO CLEVELAND KANSAS CITY, MO

ST LOUIS, MO

TORONTO

WINNIPEG, MAN

ties heard than workmen began firing the kilns with the small amount of coal held in reserve when the company closed its plant on August 6.

The Springfield Clay Products Co. also reopened its plant a few days later, and the Poston (Ill.) Brick Co., which has been running on a light scale for several months, is again going full blast. All three companies are anticipating good fall and winter business.

WILL OPERATE FOR THREE MONTHS

The Kokomo (Ind.) Brick Co. has resumed operations for three months after being closed on account of the coal and rail strikes. Until the price of coal became prohibitive, this concern had been running 80 per cent. of its 36,000 daily capacity. One-third of the output is absorbed in local building, and O. M. Booher, general manager, expects a greater building program next year, since it is estimated that construction is four years behind in that vicinity.

THE IMPORTANCE OF THE BRICK QUESTION

There are times when the selection of brick is more important and as much trouble as selecting a new frock for the "missus." A meeting of the board of education of Columbus, Ind., was called to order recently in a flivver when a storm threatened to interrupt an inspection of the new high-school gymnasium under construction there. All of the formalities of the board meeting were gone thru in spite of the unusual meeting place, and the board reached a decision on brick for the new building.

REDUCE R. R. RATES IN INDIANA

As a result of a hearing before the Indiana public service commission recently concerning freight rates on brick from Indiana factories to the new State Reformatory near Pendleton, Ind., the commission soon will issue an order reducing the freight rate on brick shipped from Brazil to Pendleton from \$2.10 to \$1.30 a ton. Recently the commission reduced the freight rates on brick shipped from Putnamville to Pendleton from \$1.76 to \$1.30 a ton. The Indiana commission is working out reductions in rates in advance of the country wide changes, which are scheduled to take place October 1.

COMPLETES NEW MACHINE ROOM

The Buffalo, Kan. brick plant has resumed operations after being closed down for two weeks, during which a new machine room was completed. A new crusher will be installed in the near future, enabling the shale to be prepared more easily. Shortage of box cars has handicapped delivery at this plant, and coal cars have been put into use for shipping brick.

EXHIBITING AT KENTUCKY STATE FAIR

At least three Louisville brick manufacturers have exhibits at the Kentucky State Fair, which opened on September 11. The Coral Ridge Clay Products Co. and Southern Brick & Tile Co. are staging a joint exhibit, while the P. Bannon Pipe Co. is showing its general line of products.

START BURNING BRICK AGAIN

A number of the brick plants in Louisville which were shut down entirely, or merely making brick and not burning, have started burning brick again, altho it is reported that coal supply is uncertain, and they may have to slow down operations again after burning a few kilns. Demand is keen, but a number of houses have orders on their books that have not been shipped, and are not willing to accept much new business as a result.

Salem Elevator Buckets



We are manufacturers of the original SALEM ELEVATOR BUCKET which is used for handling all classes of materials in many different industries.

This type of bucket is of one piece construction, with rounded contour throughout, smooth in form, durable in service and clean in handling and delivery of materials.

There are no seams in front nor on the ends, the laps being made on the back and bottom at the ends. On the back the laps are riveted or spot welded; on the bottom the end pieces are bent under and hammered tight.

The widest range of service is covered by a very full line of regular types and sizes and made in various gauges of steel, from the lightest practical for ordinary work to the heaviest necessary for the most severe duty.

Write for new price list.

THE WEBSTER MFG. COMPANY

4500-4560 CORTLAND ST., CHICAGO

Sales Offices in Principal Cities

The Ideal Location For Your New Plant!

The territory along the Pittsburgh, Lisbon & Western R. R. is of high value to the Clay Products Manufacturer who contemplates the construction of a new plant.

Here is the Analysis:

Coal—No. 6	Clay—No. 3
Water.....2.200	Silica.....59.84
Volatile	Alumina.....25.96
Matter.....35.540	Iron Oxide.....1.68
Fixed	Titanium Oxide.....1.60
Carbon.....54.705	Magnesium Oxide.....1.08
Sulphur.....1.725	Sulphuric Anhydride.....Trace
Ash.....5.830	Alkali Oxides.....1.22
	Fusion Point.....3020° F.

Act at once. Write us today

The Pittsburgh, Lisbon & Western R. R. Co.
Lisbon, - - - - - Ohio

Building a New One? Remodeling the Old?

No matter which you are doing our service can be of benefit to you.

A sincere interest in your problem, together with common sense methods and a broad experience makes this service highly profitable.

Write for details

WALLER CROW, INC.
Engineers
COUNSELLORS IN INDUSTRIAL
OPERATION & FINANCE
327 S LA SALLE STREET
CHICAGO

Electric Motors and Generators for all requirements of the Brick and Clay Industry

■ ■ ■

BURKE ELECTRIC CO.

MAIN OFFICE AND WORKS
ERIE PENNSYLVANIA

Service-Sales Offices

NEW YORK CLEVELAND PHILADELPHIA
PITTSBURGH DETROIT BUFFALO

Sales Agencies

CINCINNATI: UNDERWOOD ELECTRIC CO.
KANSAS CITY: W. T. OSBORN

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you need a conveyor. What width and thickness of belt is required—what horse power will be consumed—how fast should the belt operate—how will you space the idlers—how will it discharge? Pages 152 and 154 of the 1922 Clay Products Cyclopedia answer these and many other perplexing problems concerning belt conveyors.

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407 S. Dearborn
St.,
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Enter my order for one copy of the CLAY PRODUCTS CYCLOPEDIA, the price to be \$3.00 I agree to send check upon receipt of invoice or return book in ten days after receipt.

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BRISTOL'S PYROMETERS



**MORE WARE
LESS COST
BETTER QUALITY
BY INSTALLING
BRISTOL'S**

because you know at all times the temperature of your kilns. Even temperatures are necessary to cut waste and increase production.

Bristol's accurately indicate and record temperatures up to 3,000 degrees Fahrenheit.

The Bristol Company
Waterbury, Conn.

*Rugged
Simple
Accurate*

JUST OFF THE PRESS
**New Pyrometer
Catalogue 1401**
WRITE FOR IT!

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DRY PANS

WET PANS

ROLL CRUSHERS

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SEWER PIPE TURNERS

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BUCKET ELEVATORS

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BRICK BARROWS

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on
Request*

**THE
STEVENSON CO.**
Wellsville Ohio

WILL ERECT NEW BUILDING

The Norton Co., Worcester, Mass., manufacturer of abrasive products, will commence immediately the construction of a new four-story building at its plant, 50x125 ft., to be located near Plant No. 6.

HOLYOKE WILL USE OHIO PAVERS

The Metropolitan Paving Brick Co. of Canton, Ohio, has been awarded a contract for 200,000 paving brick at \$58 per thousand by the city of Holyoke, Mass.

OVERSOLD DESPITE ENLARGEMENTS

The New Corunna Brick Co., Corunna, Mich., is a fortunate plant during the serious coal shortage. This concern mines its own coal, and at present is producing about 40 tons per day. Extensive improvements have recently been made on the plant, mainly three new kilns and three new stacks. N. R. Kincaid of this company states they are very largely oversold on face brick at this time.

WANTS \$1,531 REPARATIONS

Walsh Fire Clay Products Co., with plants at Vandalia and St. Louis, Mo., filed a complaint with the Interstate Commerce Commission on September 7 against the Chicago & Alton and Wabash railways asking for reparation amounting to \$1,531 from the carriers on various shipments of fire clay moving to the complainant's plants during the period of Federal control.

OIL BURNING KEEPS UP PRODUCTION

During the coal strike, the Harrisonville (Mo.) Brick & Tile Co. were forced to cut their consumption of coal in half, but made up for this lack by using fuel oil for burning their kilns. Thus they kept their production up to standard, turning out an average of 65,000 brick a day, and shipping them as rapidly as made. The railroad strike has not been felt by this plant, and no surplus has been piling up for lack of freight cars.

WILL ADD FACE BRICK TO OUTPUT

The Seward Brick Works of Lincoln, Nebr., is planning to manufacture face brick in the near future, according to Mr. Turner, manager.

NEW COMMON BRICK CONCERN IN JERSEY

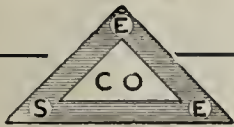
The New Jersey Brick Co., Inc., Eatontown, N. J., has been organized under state laws, with a capital of \$20,000 to operate a local plant for the manufacture of common brick. The company is headed by Walter T. Spalding, Eugene A. H. Watson and Theobald Mincer, all of Eatontown. The last noted represents the organization.

NEW HUDSON RIVER PLANT PROBABLE

Finnegan & Mook, Mechanicsville, N. Y., contemplate erecting a large modern plant on the east bank of the Hudson River just north of the Boston and Maine Railroad bridge. They are dickering for land and railroad switch.

DEMAND 20 PER CENT. WAGE INCREASE

Just at the time that work was to be resumed at the face brick plants in the Shawnee and New Straitsville districts of Ohio following the settlement of the coal strike, the men employed at five concerns made a demand for an increase of 20 per cent. in wages and a reduction of the day from nine to eight hours. These demands the companies refused to accept, and consequently none of the plants in that district are in operation. Plants involved include the Ironclay Brick Co., the Claycraft Brick Co., the Central Refractories Co., and the Straitsville Impervious Brick Co. No efforts



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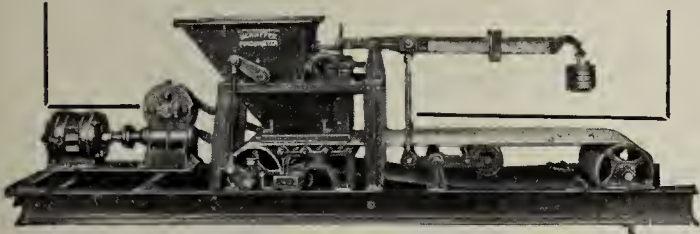
The Poidometer eliminates waste and extra labor, eliminates cracked ware in the dryer, and will weigh your clay at any rate of speed (1½ pounds to 21,000 pounds per minute).

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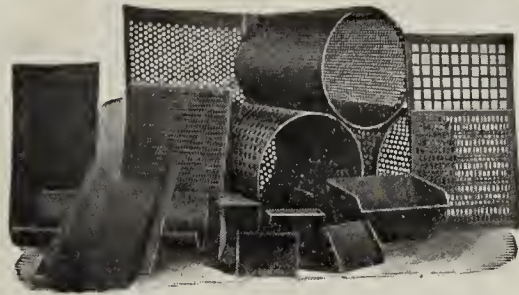
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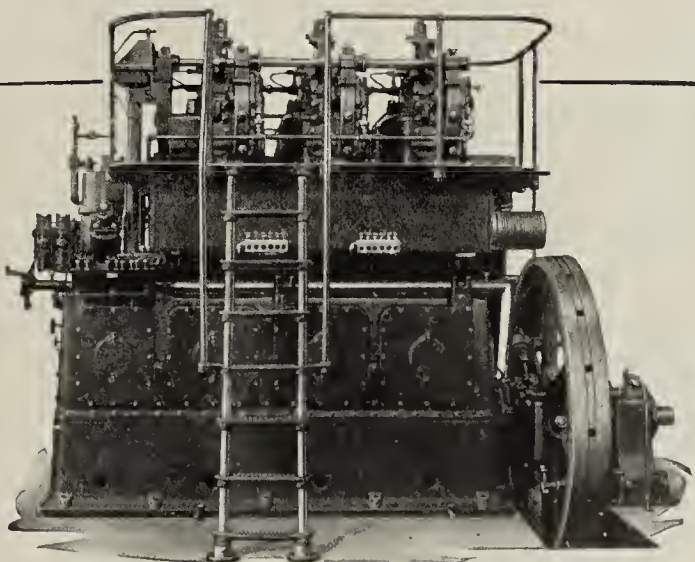
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To any Clay Products Manufacturer who has not been using Des Moines Hand Pads, that will clip out the handpad shown here and mail it to us on his letter head we will send free a pair of Des Moines Mittens.
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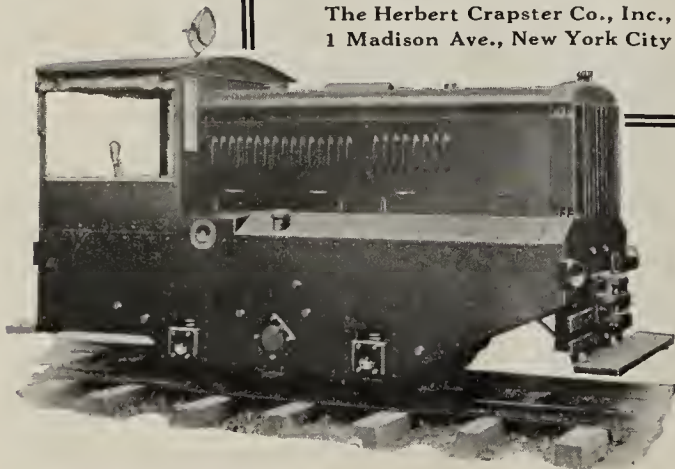
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with a minimum cost for
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The Herbert Crapster Co., Inc.,
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have yet been made to negotiate a scale, and the plant owners are playing a waiting game, so to speak.

INDEPENDENT DECLARES DIVIDEND

Herbert F. Geist, president of the Independent Brick & Tile Co., Cleveland, Ohio, announces that A. J. Earle, who has been sales manager of this company, was elected treasurer and director at the annual meeting of the board of directors this week. He also announces that the board declared the regular quarterly dividend of $1\frac{3}{4}$ per cent. on the preferred stock.

CAR SHORTAGE HOLDS UP PAVING JOBS

The car shortage and embargoes on many railroads are causing much trouble among the paving brick manufacturers of the Buckeye State. A number of public works paving jobs are being delayed and the situation is growing worse instead of better. Most of the jobs are continuing at a low rate of progress because of inability to secure materials promptly. A number of brick paving jobs have been provided in the lettings of the Ohio Department of Highways and Public Works. In a letting on September 1 a stretch of three miles in Ashland County; a section of 1.75 miles in Huron County; another section in Lake County of more than one mile; a section of 3.35 miles in Wayne County and a section of .131 miles in Marion County were awarded for brick paving. In a letting held September 15 brick was specified on several stretches.

TRUCKS OBVIATE SHIPPING DELAYS

With the Richland Shale Brick Co. of Mansfield, Ohio, now operating on a commercial basis, contractors in that city are assured of building brick without any delay in shipping, as the brick are hauled by truck from the plant, a distance of six miles. Four kilns are in-operation, three of which have a capacity of 92,000 each, and the fourth, 175,000. The present output is 35,000 brick daily, and the company is planning to add more kilns to increase this production.

OHIO WILL DEMONSTRATE BETTER HOMES

Governor Harry L. Davis of Ohio in a proclamation issued recently designated the week starting October 9 as “Better Homes Demonstration Week.” Among other things in the proclamation were: “We recommend that the earnest support of the people of Ohio be given to this campaign and that every family in the state seek an opportunity to see and study one of the model homes which are to be fitted up by public spirited citizens and opened for inspection.”

FIRE THREATENS PITTSBURGH PLANT

Fire at the plant of the Woods & Lloyds Clay Products Co., South Thirtieth Street, Pittsburgh, Pa., on Sept. 6, was confined to a loss of about \$200 by the prompt action of officials. The fire was caused by an overheated chimney, and the bulk of loss was to the roof.

MAKES LARGE CAPITAL INCREASE

The Oliver Springs Brick Co., Nashville, Tenn., has made an increase in its capital stock from \$6,000 to \$60,000.

SHIPS FIRST KILN OF TILE

The first tile to be manufactured by the Kewanee (Wis.) Brick & Tile Co., has been shipped to the market. With the opening of the first tile kiln, the company is now prepared to make immediate delivery of both brick and tile products.

MODERN EQUIPMENT TRANSFORMS OLD PLANT

The Watertown (Wis.) Brick & Tile Co. during the last year has turned its old-fashioned brick yard into a modern



A guide to valve satisfaction

Among the world's best known trade marks is the Jenkins "Diamond".

For years and years it has been the buying guide to dependable valve service—the symbol of satisfaction that the man who knows valves and valve requirements insists must be cast on the valves he uses.

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Here is another reason why careful Brick Manufacturers in all parts of the country have selected

Smokeless Oil Burners



They are dependable at all stages of the burn. Because of their absolute dependability they cost less in the long run, both in labor and fuel.

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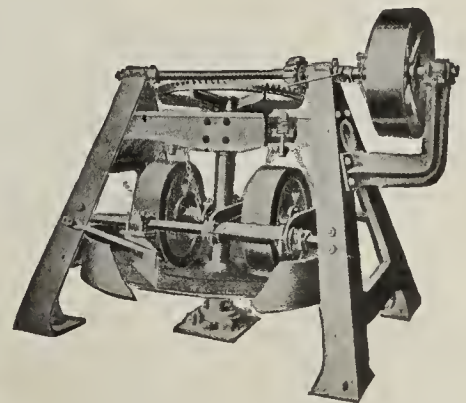
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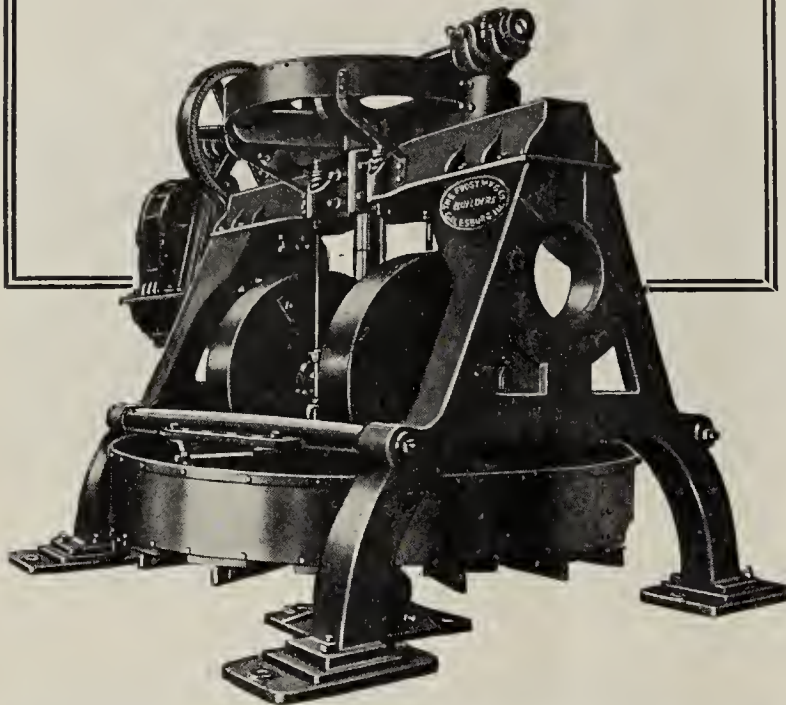
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BETTER QUALITY WARE

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Dry Pans are put on the job.

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Are absolutely leak-proof. They utilize practically all the fuel particles, assuring a maximum output for a minimum consumption of fuel. They are noted for producing a flame of amazing heating capacity.

*Estimates furnished on
Complete Installations*



*John Foerst & Sons
Fuel Oil Burner Mfrs.
Bayonne, New Jersey*

plant. New brick machines and the latest improved dryers have increased the capacity from 3,000,000 to 15,000,000 brick annually, and reduced the cost of manufacture considerably. The demand has always been greater than the supply, and at present there is not an unsold brick or tile in the yards, with orders on file for more than 500,000 brick. Fine shipping facilities and an advantage in freight rates enables the company to meet competition at a good profit. Omar Gaston is president and general manager.

IDLE PLANT TO REOPEN

The Port Credit (Ont.) Brick Works, Ltd., contemplates reopening its plant for the manufacture of pressed brick. The machinery, which has been idle for some time, will be put in shape for running as soon as possible.

LEAKY GAS PIPE CAUSES DAMAGE

Damage to the extent of \$8,000 was caused by a leaky gas pipe at the Don Valley Brick Works, Toronto. This pipe was between the producer and the gas fired continuous kilns. The roof covering the battery of 20 kilns was destroyed. In the kilns at the time were 2,500,000 brick.

MOVING TO LARGER OFFICES

The Milton Pressed Brick Co., Ltd., is moving the Toronto office from 48 Adelaide Street, West, to the new office building at the corner of Bay and Adelaide Streets. They will have much larger offices and better facilities for displaying their lines of pressed and rug brick.

LARGE PRODUCTION INCREASE PLANNED

The Sydenham Brick & Tile Co., Ltd., Wallaceburg, Ont., is planning for the construction of an addition to its plant for extensive increase in production. About \$30,000 will be expended for buildings and equipment. E. C. Morse is general manager.

CLAY PRODUCTS IN PERMANENT EXHIBIT

The Manufacturers' Association of British Columbia has established a permanent exhibit on Granville Street, Vancouver. Among those reserving space is the Polychrome Brick & Tile Co., Ltd., manufacturer of brick and tile, and Port Haney Brick & Tile Co., manufacturer of building and drain tile.

✻ ✻ ✻

THE BUILDING SITUATION

(Continued from Page 393.)

Jersey, amounting to \$637,534,000, was only \$8,000,000 less than the amount started in the entire year 1921. Compared with the first eight months of last year, this year's increase is 77 per cent.

August building contracts amounted to \$80,738,000, an increase of 5 per cent. over the preceding month and of 33 per cent. over the corresponding month of last year. Included in the August total were: \$28,970,000, or 36 per cent. for residential buildings; \$12,649,000, or 16 per cent., for industrial buildings; \$11,378,000, or 14 per cent., for business buildings; \$9,638,000, or 12 per cent., for educational buildings.

Contemplated new work reported during the month amounted to \$87,210,000.

Middle Atlantic States

Total building contracts awarded during the first eight months of this year in the Middle Atlantic States (Eastern Pennsylvania, Southern New Jersey, Delaware, Maryland, District of Columbia, Virginia and the Carolinas), have amounted to \$347,170,000, which is only eight million under the amount for the entire year 1921. Compared with the first eight months of 1921, this year's increase is 55 per cent.

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Unlike the usual portable power driven mechanical contrivances, they never endeavor to shirk a day's or even a portion of a day's work by pleading, "out of order."

Operated by a perpetual power, GRAVITY, the sensitive ball-bearing rollers respond instantly and freely to the pressure of the load, and riding friction free, brick and all clay products are transported from car to pile or vice versa.

Our representative in your territory will gladly call and show you how effectively a few sections of these time- and labor-saving conveyors will operate in your yard.

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August contracts amounted to \$36,399,000, which was a decline of 34 per cent. from the previous month and of four per cent. from the corresponding month of last year. Last month's figures included: \$14,881,000, or 41 per cent., for residential buildings; \$5,895,000, or 16 per cent., for public works and utilities; \$4,969,000, or 14 per cent., for business buildings; and \$4,581,000, or 13 per cent., for educational buildings.

Contemplated new work reported during the month amounted to \$52,294,000.

Pittsburgh District

August building contracts in Western Pennsylvania, West Virginia, Ohio, Kentucky and Tennessee, amounted to \$85,406,000, an increase of 42 per cent. over July, and of 160 per cent. over August, 1921. Last month's total included one contract for 35 millions, the by-product coke plant of the Carnegie Steel Co., near Pittsburgh.

The awarding of this large contract caused industrial building to be in the lead during August, amounting to \$39,688,000, or 46 per cent. of the month's total. Public works and utilities amounted to \$15,165,000, or 18 per cent.; and residential buildings to \$14,719,000, or 17 per cent.

Contemplated new work reported during August amounted to \$59,184,000.

The total construction business for the first eight months of this year has amounted to \$406,492,000, only 14 million less than the amount for the entire year 1921. Compared with the first eight months of last year, this year is 40 per cent. ahead.

Then Central West

Construction started in the Central West (Illinois, Indiana, Iowa, Wisconsin, Michigan, Missouri and portions of Eastern Kansas and Nebraska) during the first eight months of this year has amounted to \$680,050,000, an increase of 36 millions over the total for the entire year 1921. Comparing the two years on the eight months' basis, this year is 52 per cent. ahead of last.

The August total of contracts awarded was \$84,382,000, a decrease of 33 per cent. from the peak figure of the preceding month, but an increase of 40 per cent. over the corresponding month of last year. Included in last month's total were: \$27,524,000, or 33 per cent., for residential buildings; \$19,181,000, or 23 per cent., for public works and utilities; \$11,384,000, or 13 per cent., for business buildings; and \$9,675,000, or 11 per cent., for educational buildings.

Contemplated new work reported during August amounted to \$127,079,000.

The Northwest

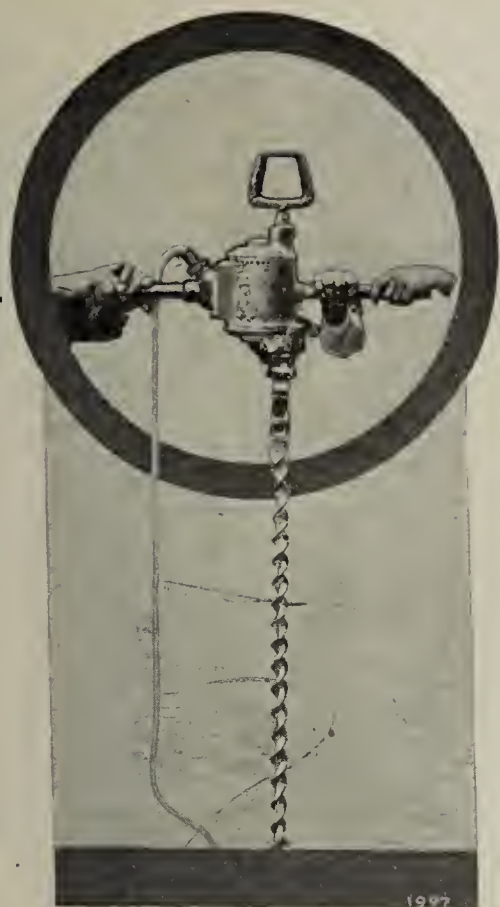
August building contracts in Minnesota and the Dakotas amounted to \$7,008,000, a decrease of 12 per cent. from the previous month and of 14 per cent. from the corresponding month of last year. The August total included: \$2,337,000, or 33 per cent., for industrial buildings; \$2,116,000, or 30 per cent., for residential buildings; and \$1,144,000, or 16 per cent., for business buildings.

Contemplated new work reported during the month amounted to \$4,245,000.

During the first eight months of this year the total amount of construction started in this district was \$62,442,000, an increase of eight per cent. over the corresponding period of last year.

Toronto Shows 33 Per Cent. Gain

In August permits valued at \$3,080,645 were issued in Toronto, Ont., as compared with \$2,037,588 in August, 1921. The permits included 355 brick dwellings. This year permits have been issued for 3,349 brick houses. The permits for eight months of this year are valued at \$24,734,405.



Hand Methods Lose in Shot-Hole Boring Contest

MATCHED against a Little Giant Electric Coal Drill in a shot-hole drilling contest, the hand auger stands little chance of survival.

For example, the A. P. Green Fire Brick Company, Mexico, Mo., using the Little Giant Electric Coal Drill illustrated, drilled fourteen four-foot shot holes through plastic, semi-plastic and flint clay while a hand auger drilled one such hole.

Stop drilling shot holes by hand! Use Little Giants not only for shot-hole boring—use them for repair work. Available for operation on D. C., or single, two or three-phase A. C. Address nearest Branch for trial drill.

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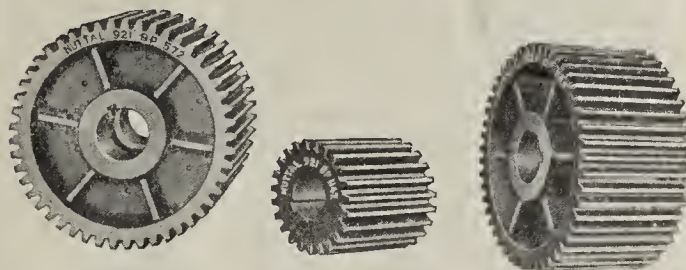
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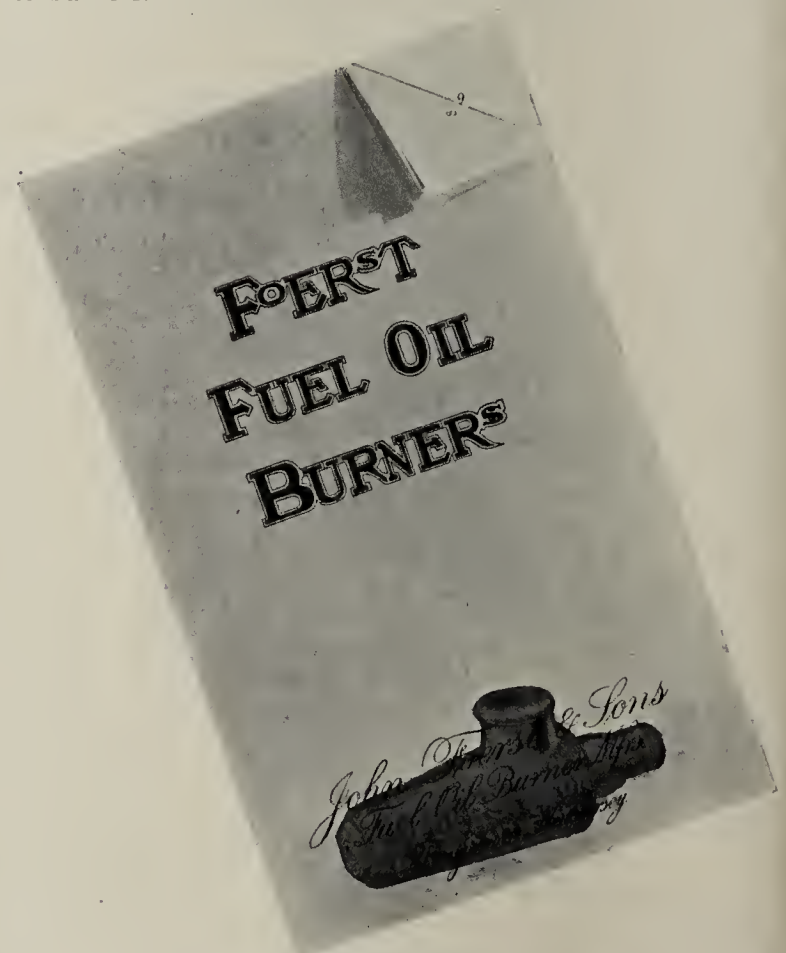
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The coal and railroad strikes have greatly increased the interest in fuel oil burners for clay products plants. This fuel has been used with great success in certain sections of the country for years where the price of fuel oil compared favorably with that of coal. A long drawn out strike has increased the price of coal, and the increased demand which has resulted, combined with the railroad strike, has made the delivery of coal quite a question for the present and the near future.

John Foerst & Sons of Bayonne, N. J., have been engaged in the successful manufacture of fuel oil burners for every industrial purpose for more than 30 years, during which time their burners have maintained a reputation for economy and efficiency. They have nine different styles of burners, made in the conical, spray, fantail and marine type. The conical type is that most used in burning clay products. They manufacture three sizes of this type, 49 of one size being used very successfully by a plant in Michigan. These sizes range in length from five to eight inches.

The Foerst company maintains distributors in seven cities thruout this country and Canada. These distributors are equipped to make surveys of plants contemplating the change from coal to fuel oil. They are also prepared to submit bids on complete fuel oil burning installations, from storage tanks to burners.



Fuel Oil Burner Catalog of John Foerst & Sons, Which Is Full of Interesting Information.

✱ ✱ ✱

A great deal of very helpful information on waste heat drying is to be found in Bulletin No. 21, Series 3, issued by the American Blower Co., of Detroit, Mich. If you have a copy available, it would be well to review it. If not, write for one. Don't fail to look over the data on steam traps (in the back part)—they are money savers wherever steam is used.

✱ ✱ ✱

Lancaster Iron Works, Inc., Lancaster, Pa., have just arranged with Adams, Bros.-Payne Company Lynchburg, Virginia, to install one of their Auto Brik machines. The sales on this automatic machine for Plant Betterment are averaging one a week, and some weeks two.

Leading Clay Journal of the World.

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Subscriptions: One Year (26 Numbers), United States, \$3.00; Foreign, \$4.00;
Single Copies, 25 Cents.

Published Every Other Tuesday by

INDUSTRIAL PUBLICATIONS, Inc., 407 S. Dearborn St., Chicago.

Telephone Harrison 9462

NEW YORK

CLEVELAND

KANSAS CITY

Chicago, October 3, 1922

Vol. 61, No. 7

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The Subscriber Comes First

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The publisher of a business paper should dedicate his best efforts to the cause of Business and Social Service, and to this end should pledge himself: 1. To consider, first, the interests of the subscriber. 2. To subscribe to and work for truth and honesty in all departments. 3. To eliminate, in so far as possible, his personal opinions from his news columns, but to be a leader of thought in his editorial columns, and to make his criticisms constructive. 4. To refuse to publish "puffs," free reading notices or paid "write-ups;" to keep his reading columns independent of advertising considerations, and to measure all news by this standard: "Is it real news?" 5. To decline any advertisement which has a tendency to mislead or which does not conform to business integrity. 6. To

solicit subscriptions and advertising solely upon the merits of the publication. 7. To supply advertisers with full information regarding character and extent of circulation, including detailed circulation statements subject to proper and authentic verification. 8. To cooperate with all organizations and individuals engaged in creative advertising work. 9. To avoid unfair competition. 10. To determine what is the highest and largest function of the field which he serves, and then to strive in every legitimate way to promote that function.

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The EDITOR'S CORNER

To Bring Back Prosperity Labor Restricted by Immigration Must Be Supplanted by Machines

VAUCLAIN, Babson, Forbes, Hoover, Mellon, Davis and others—men who occupy stations in industrial life that inspire our faith in their ability to forecast economic conditions with reliability,—tell us that we are on the threshold of prosperity. But we think they fail to emphasize the biggest factor upon which a return to times of plenty is contingent.

Economic wounds suffered by business from the strike period, we are told, are less deep than feared. Considered from angles of easiness of money, farmers' position, European situation and other basic factors, business is in a healthy state. But we are going to have a labor shortage. In fact, we are struggling with one right now.

A recent tour thru clay products manufacturing centers such as Connecticut, Hudson River, northeastern New Jersey, western Indiana, parts of Illinois and Iowa, has brought forcibly to the attention of the editors of this journal, the real seriousness of the labor problem right in this industry.

While the manufacturers themselves are fully aware and bemoan their own unfortunate labor situation, they do not appreciate that their problem is the same as nine out of ten other clay manufacturers—and this broadens the scope of the matter and gives it greater consequence. Reduced labor supply

means competition for men, stunted production, higher wages, lower efficiency. Considered from the standpoint of the entire nation, it means inflation. We fear another period of unhealthy business conditions. It is essential that we watch our step.

A compilation of wage changes reported from every field of industry in all parts of the country was recently made by the National Industrial Conference Board. It shows a striking nation-wide upward movement in wages.

	Reductions	Increases	Total Changes
April-May ...	54	9	63
May-June	23	26	49
June-July	25	21	46
July-Aug.	7	8	15
Aug.-Sept.	4	119	123

The suspension of immigration during the war and its legal limitations since, have brought about this labor shortage. We are short several million of what we would have had but for the war and the law. And the country, in the meantime, has kept on growing. The shortage applies more particularly to the lower type of labor, and affects the clay industry severely.

Immigration will probably always be limited in the United States. In fact, Representative Johnson (Washington)

plans introducing a bill in Congress which will reduce immigration even further. There is little hope of suspending the immigration laws. Fear of Bolshevism, if nothing else, makes that unlikely. However, the present law needs to be made more lenient by amendment. Whatever favorable changes in the law are made, there will still exist a condition different than that of a decade ago. The day of the old unskilled labor with a pick and shovel, ready at a moment's call, is gone. Machinery, not the nearly extinct species of men "with strong backs and weak minds," will have to serve industry.

Before healthy business and genuine prosperity which Davis, Babson, Forbes, Mellon and others promise, arrives, the labor problem must be adjusted by obtaining a greater supply of men, handling them with greater attention, and by supplanting men as much as possible with machinery. When labor was cheap, machinery was in a good many instances actually expensive, but now that labor is expensive and hard to get at that—machinery is cheap. The clay industry is already installing machinery to take the place of labor in as many places as it can. Recent field trips have shown remarkable activity in this direction. But the rank and file of clay plants have made but a start, and increased man capacity must be the aim of every plant manager.

Samuel M. Vauclain, the dynamic president of the Baldwin Locomotive Works, has just made a 10,000-mile swing thruout the country. He doesn't believe you can size up conditions by sitting in an office and reading reports. Forget the statistics, he says; go out among the people and find out how they are thinking. Quoting from his article in Collier's:

"Another and extremely important element in the industrial situation today is the scarcity of common labor and the rather general lack of preparation to substitute machinery for it. Under our present immigration laws, common labor is going to become scarcer and scarcer. The man must be replaced by the machine. Today most men are semi-skilled. The old unskilled laborer—the man who could just handle a pick and a shovel—is all but gone. The unskilled laborer of today is unskilled in a very literal way. He does not know how to do anything, and he wants a very high wage before he will consent to give a demonstration of how little he knows. The country has not prepared for this. It has not prepared to dig cellars with tractors. The adjustment will have to come quickly. We have less human labor than is needed for the work to be done, and we shall continue to have less of it. In order to get our work done, machines, and not men's backs, will have to carry the heavier burdens. Every job in the future will require more machines and fewer men if the work is to be done at a price commensurate with buying power.

"To effect this requires the cooperation of both employer and employee. The employer may have to devise, and certainly will have to buy more machinery, and the employee will have to recognize that it is the machine, and the machine alone, that can raise his wages, and will therefore consider a job as something to be done with the fewest possible men and the greatest expedition. He will have to stop looking at a job as something to be fondled and pampered and at all costs kept alive."



* * * Certain losses are gains, as for example, the destruction of an old, but still serviceable plant, the replacement of which, however, will make for greater efficiency. Knowing this the wise business man allows liberally year by year for depreciation of plant, furniture and fixtures, and sets up reserves to take care of his new commitments in this direction.—Harriman National Bank.



One step won't take you very far—
you've got to keep on walking.
One word don't tell folks who you are
—you've got to keep on talking.
One inch don't make you very tall—
you've got to keep on growing.
A little thought won't do it all—
you've got to keep on thinking.

KEEP ON KEEPING ON

Finds Better Method for Handling Dryer Condensate

System Delivers Water to Boilers at Higher Temperature Than Steam Pump

Traps or pumps for taking care of the condensate from steam dryers and hot floors are important items for a large number of clay plants. Soft mud brick manufacturers using artificial dryers, stiff mud plants using steam dryers, refrac-



The Newly Installed Steam Trap Drain May Be Seen on the Right. It Replaced the Steam Pump on Left, Now Idle.

tories manufacturers using hot floors, sewer pipe factories and drain tile plants, have to consider some way of taking care of the hot water formed by the steam condensing in the dryer system. It is best economy to provide some means of disposing of the dryer condensate, because it permits more efficient operation of the dryer and also allows more economical operation of the boiler, due to the fact that preheated water is added to the boiler.

Many plants use condensers and pumps to take care of the water from the dryer. This is what the Donnelley Brick Co. of New Britain, Conn., did until very recently. The principle of operation of condensers is the use of a spray of cold water into the steam. The resultant mixture flows downward, and is removed by some sort of mechanical pump.

An improvement over this method of caring for condensate resulted from the installation of a Moorehead steam trap. Briefly, the system consists of two drum receivers, resembling small water boilers. One is located at a low point where the former steam pump was situated, and the other is mounted above the boilers.

The hot water condensate from the drying system enters the first drum and when it becomes filled the drum automatically dumps and throws the water to the second drum situated above the boilers. This drum also dumps automatically when filled, and the water re-enters the boiler at a very high temperature.

The advantage claimed by Mr. Donnelley for this equipment are that it delivers the water to the boiler at a considerably higher temperature than the steam pump, thus effecting an economy, and its operation is very much simpler and requires no attention whatever, since it is entirely automatic.

This Truck Reduces Haulage More Than Half

Runs Around Between Kilns and Buildings Busy as a Bee

With the old system of hauling coal and ashes by cart and horse, the Sheffield (Ia.) Brick & Tile Co. required two carts and horses and four men. They have replaced this equipment with a Ford truck with a dump body, and two men now haul all the coal, ashes and refuse that was formerly hauled with the more expensive equipment. This Ford truck handles approximately one ton per load, but is



Dumping a Load of Scrap and Refuse. A Few Turns of the Lever Which the Man Is Holding Lowers or Raises the Dump Body.

so easy to move around the kilns that it dumps each load at the fire box at which it is to be used, saving any extra handling of coal which is sometimes necessary when large trucks are used.

HOOVER SAYS:

"Any encouragement and assistance, looking to the stabilization, and betterment of methods and processes of production in your industry, is in my view, of course, desirable. Experience proves how large a service trade periodicals can render in the betterment of the industries they serve, and I feel sure that, knowing the problems of the clay products industries as you do, your assistance to your industries must indeed serve good ends."

Herbert Hoover

Speeds Up Kiln Turnover Three Days

Blows Hot Air Out Thru Crown Holes
—Increased Capacity 5 M Per Day

We have heard of drawing the hot air from the kilns with a fan to speed up cooling, but H. S. Langworthy of the Jewettville Clay Products Co., Buffalo, N. Y., reverses this principle and blows the hot air out of the kiln. Mr. Langworthy, with two rectangular down-draft kilns of approximately 175,000 capacity, and two of 140,000 and 115,000 capacity respectively, maintains a production of 38,000 brick per day. This is a tremendous output from such a small kiln room, and is due in large measure to the rapid cooling which permits the men to get into the kilns to unload very much sooner than would be the case under ordinary circumstances. About 12 hours after a kiln has been fired off, this blower is set up and the heat blown out of the kiln. The blower pipe enters the kiln at the end, near the roof, and the hot air is blown out thru the crown holes.

With this arrangement it is possible for the men to get into the kiln in from 48 to 60 hours after firing, and Mr. Langworthy estimates that the cooling has been speeded up about three days.

This little piece of equipment has increased the capacity of the plant 5,000 brick per day.

The pipe running from the blower back to the motor has



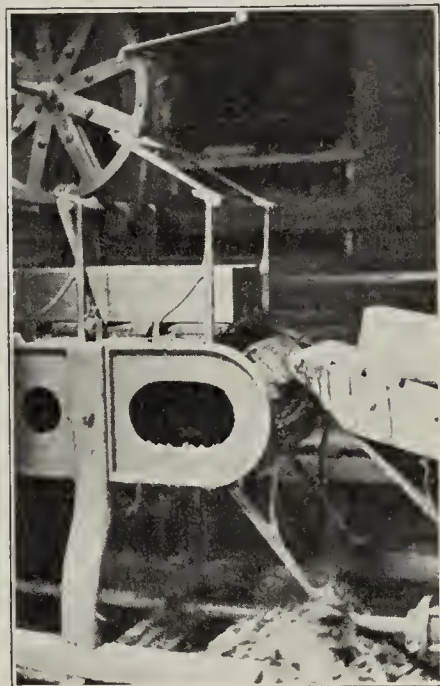
This Electric Blower Speeds Up Production 5,000 Brick a Day.

eliminated the nuisance of burned out bearings and the air thus sent into the motor keeps it entirely cool.

Two Men Eliminated by Special Arrangement of Belt

Original Idea Moves Hollow Tile from Cutter to Off-Bearing Belt, Automatically Without Labor

The cost of two men has been saved by an ingenious attachment at the end of the off-bearing belt next to the cutter, at the plant of the Hawkeye Clay Works of Fort Dodge, Ia. As shown in the sketch, the second pallet under each tile is not perfectly level, but is inclined so that just as the pallets start around the circle the tile leave the first pallet, and the weight is thrown entirely on the second. This attachment is arranged so that as the tile move forward the first part of the tile is caught by the off-bearing belt as shown. As this belt is driven at a good speed, it pulls the tile onto it from the cutter. The off-bearers remove the ware from the belt onto cars, the same as at other plants. This improvement was made by H. H. Pohlman, the superintendent of the plant.



Nose-Like Attachment to Off-Bearing Belt Which Saves Two Men's Wages Every Day.

Fuel Suggestions for Hudson River and New England Yards

Fuel Oil and Coal Both Used to Burn Brick—Get Good Results

Lack of fuel has been a serious problem for Hudson River and New England brick manufacturers during the past few months. Their problem has been even greater than that of other manufacturers, because of their greater distance from the sources of the limited supply available during the strike.

Coal will continue to be scarce, hard to obtain and high priced along the Hudson River and in New England for

INCREASED PROFITS

some time to come. Wood is also becoming more expensive and less plentiful. For this reason manufacturers are turning their attention to other sources of fuel. In view of the interest which is being manifested in oil burning, the following information gained from two brick plants along the Hudson River will be of interest.

On Hudson River plants coal will always be required, regardless of whatever other fuel is used. It is essential to mix hard coal screenings with the clay in the approximate proportion of 22 bushels per 25,000 brick. Black cores and soft centers would result if this coal were not mixed with the clay, because the clay "case hardens" during the water-smoking and dehydration process. For actual firing, however, there is no doubt that oil can be used, at least part of the time during the burn.

As is quite well known, most of the Hudson River manufacturers use anthracite coal for burning. Bituminous coal, they claim, would soot up the kiln, especially during the first stages, and cause difficulty during the remainder of the burning operation. However, if those manufacturers who are using only anthracite coal would use this fuel for the preliminary stages of the burning, and finish with bituminous coal, they could undoubtedly effect a saving in burning.

A greater saving is possible by the use of a system employed by the Garner Brick Works at Haverstraw, N. Y. There fuel oil is used for burning during the first 36 to 40 hours, after which time the burners are taken away and the kiln finished with Johnstown bituminous coal. Previous to the strike, bituminous coal cost approximately \$7.50 per ton, whereas anthracite coal cost approximately \$12.50 per ton on the plant. The time of burning is the same and there is no more labor involved.

The Duffney Brick Co. at Mechanicsville, N. Y., uses oil for burning thruout the entire period that the kiln is under fire. Formerly wood was used for burning and eight days were required, during which time seven cords of wood per arch were consumed. By using oil the burning is accomplished in 50 to 55 hours. The price of the oil is 5¼ cents per gallon, and 18 to 22 gallons per thousand are required. Moreover, the burning was accomplished with two men, which resulted in a saving of one man and one horse thru changing from wood to oil.

In burning with oil it may be found necessary to set the kiln slightly different than for coal or wood fuel in order to obtain equal distribution of heat. This is best determined by experiment.

Shale Dug and Delivered for Six Cents a Ton

Two Men Do Work Formerly Requiring Ten, and Produce Better Mixture

The Adel (Ia.) Clay Products Co. has the original Adel shale planer still in use. It has dug 300,000 tons in the last eight years. The shale from the planer feeds into a hopper having a gate at the bottom. The car shown in the illustration consists of a hopper which hauls approximately nine tons, and two 30 horse power motors driven from the cab. When this car backs beneath this hopper it automatically opens a slide, thereby dropping the shale into the car. When loaded and the car starts to the factory, it automatically closes the gate at the bottom of the hopper

on the shale planer. The shale bank is 50 feet high, and two men, one at the shale planer and one on the car, deliver



Clay Car Which Holds Nine Tons, and is Equipped with Two 30-Horse Power Motors.

4,000 tons of material per month. These two men receive approximately \$6.20 per day, not including the bonus which is shared in by all of the employees of the plant. The cost of the shale delivered to the plant, including depreciation,



Two Views Showing Method of Working Levers to Dump Load from Clay Car Without Leaving Cab.

upkeep, repairs, interest, labor and every charge, averages between five and six cents a ton.

They are making another car just the same for use on their new stripping installation. The method of working of the levers for dumping the contents of either car is shown in the small illustrations. The entire operations are controlled by one man without leaving his cab.

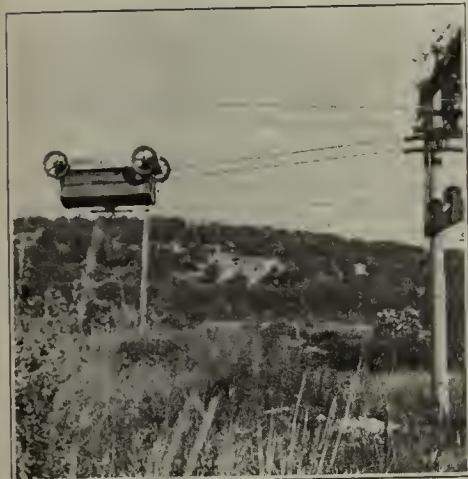
Installation of Aerial Tramway Provides for Unlimited Expansion

Capacity Easily Increased with Very Little Additional Expense Except Cost of Buckets

An ingenious aerial tramway has been installed at the Kalo Brick & Tile Co. of Fort Dodge, Ia. The pit is approximately 4,500 feet from the plant, and across a river and over very rough ground. This installation, therefore, delivers the shale at the plant at a minimum of expense.

REDUCE YOUR COST

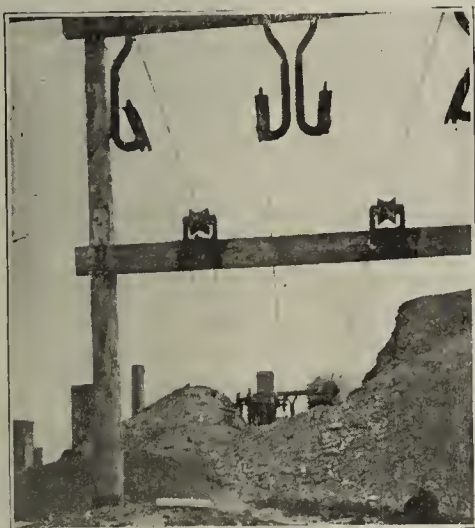
This equipment was built in 1920 at a cost of approximately \$20,000. The shale is dug and loaded automatically into



Loaded Bucket Traveling Along Cables to Plant.

small cars or buckets, each holding about 1,300 pounds. Each of these buckets, as illustrated, has four wheels which ride on two carrying cables, one on each side. These cables are three-fourths inch in diameter on the load side, that is, on the side carrying the loaded buckets to the plant. They are five-eighths inch diameter cables on the return side, as the load is consider-

ably reduced. The buckets are moved by means of a five-eighths inch cable beneath the cables on which the wheels run, and this is fastened to the center of each bucket. At present only 13 buckets are in use traveling at the rate of about four miles per hour, delivering 180 tons per day. The capacity of this tramway, however, is almost unlimited, as it is simply a matter of adding more buckets. When the buckets arrive at the plant, they are dumped automatically, and also are automatically switched from the inbound track or cables to the outbound for return to the pit. At the pit they are likewise automatical or empty pair of cables to the load pair for return to the plant loaded.



Method of Supporting Cables for Aerial Tramway. Loaded Bucket Coming Over Refuse Pile.

Speeding Up Drying in Steam Dryers

Method Described Overcomes Difficulties Due to Soft Centers

Some of the eastern soft mud brick plants who are changing over from the open yard, or rack and pallet yard, to artificial drying, are being bothered with a drying problem. The brick in the dryer do not dry completely in the center, causing warped brick, together with difficulty during the burning period. The reason for this may not be readily apparent.

The clay used in the east is frequently very fat, plastic, and the outside dries and "case hardens," entrapping the interior moisture. This moisture then has difficulty in getting out, resulting often in warped or cracked brick or causing difficulties in burning.

A suggestion for overcoming this is to operate the steam dryer so that when the brick are heated the humidity will be kept high in order that practically no drying takes place. Steam might be admitted into the drying room during this heating up process. In this way the brick together with the moisture in them become heated up with no actual drying taking place. Then by gradually reducing the humidity, the water will evaporate from the brick and be drawn out like water in a lamp wick, reducing the difficulty due to centers being soft or the brick being warped or cracked.

Experimentation will have to be resorted to in order to regulate the dryer properly, but it is possible if proper attention is given the matter. One brick plant on the Hudson River succeeds in drying its clay with live steam inside of five hours. Most plants require a great deal more time to accomplish their drying.

Clean Dies Increase Hollow Tile Output

Changes Die Twice Daily and Increases Output 10 to 20 Tons

Probably every clay products manufacturer knows that the capacity of his brick or tile machine is greater when the die is clean and not clogged with clay to hamper the flow of the column. In the manufacture of many-celled tiles especially this is an item which deserves consideration. Out in Toronto, Can., is a company, the Sun Brick Co., that increases the output of its tile machine considerably by keeping the dies clean. This company manufactures interlocking tile. Since it would be impracticable to clean the die while on the machine the superintendent at the Sun company changes the dies twice every day. This is done in the morning before work begins and at noon while the workmen are at lunch.

Now, ordinarily, the changing of a die is a nasty job requiring considerable time and to get around the difficulties attendant upon a job of this kind two devices were installed which speed up the work of changing and make it considerably easier. Directly over the die a triangular swiveling frame of lumber has been built and fastened to the ceiling. From this overhead crane a block and tackle is suspended which lifts the die off the machine and substitutes the clean die. To make the die easily accessible and facilitate still further the work of changing the dies, the roller which supports the clay column in the space between the die and the cutter is so constructed that it can be let down and out of the way providing ample room for the workman removing the die.

With these devices one man can easily replace the die and no time of any other workmen is lost. By having the die always clean the output of the machine is increased from 10 to 20 tons per day, besides being of better quality.

* * *

Follow Ford's example. Cut your costs to an irreducible minimum. Reduce prices accordingly. Demand for your product and the amount of your profits will mount beyond your fondest expectations.

ELIMINATE WASTE

How \$48 a Week Was Saved on Dryer Operation

Large Face Brick Plant Installed Dryer Car Pusher Which Reduced Labor Requirement

The Western Brick Co., Danville, Ill., were presented with the problem of cutting down labor costs and speeding up the operation of its 55-tunnel waste heat dryer. The following story outlines the conditions that had to be met on this plant, and tells how the installation of a dryer car puller solved the situation at a great saving.

- (a) Number of cars to be handled per day in dry house—500 or more, usually pushed out in groups of four.
- (b) Number of cars in each tunnel at one time—17.
- (c) Weight of each loaded car—5,000 lbs.
- (d) Number of tunnels—55.
- (e) Length of working day—6½ to 8½ hours.
- (f) Four different kinds of ware, therefore, tunnels are not run in rotation but it is frequently necessary to skip as high as 15 to 20 tracks. Instructions to operator are given by telephone from lower or hot end of dry house.

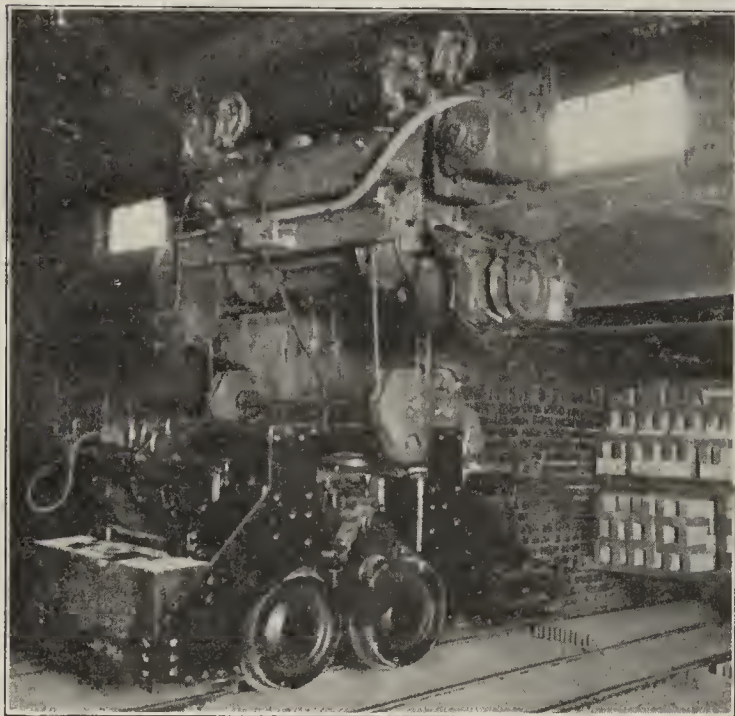


Fig. 1. The Locomotive "On the Crane." Note That the Cable is Nicely Wound Up Out of the Way.

- (g) Distance from top of rail to underside of the lowest cross beam of roof measured at a distance of six feet from dryer door is 9 feet 6 inches:
- (h) Locomotive subject to corrosion due to presence of large amount of moisture and sulphur gases.
- (i) Brick on cars at intake end are soft. Contact must be made between cars and locomotive and load started without any jar.
- (j) Locomotive to be as short as possible due to clearance. An overall length of less than eight feet is desired.
- (k) Overall width of narrowest tunnel, 44 inches.
- (l) Length of tunnels—120 feet.
- (m) Grade in favor of loads—1¼ per cent.
- (n) Track gage—24 inches.
- (o) Temperature in dryer—300 to 350 deg. F.
- (p) Suitable means to be provided for transporting locomotive from truck to track.

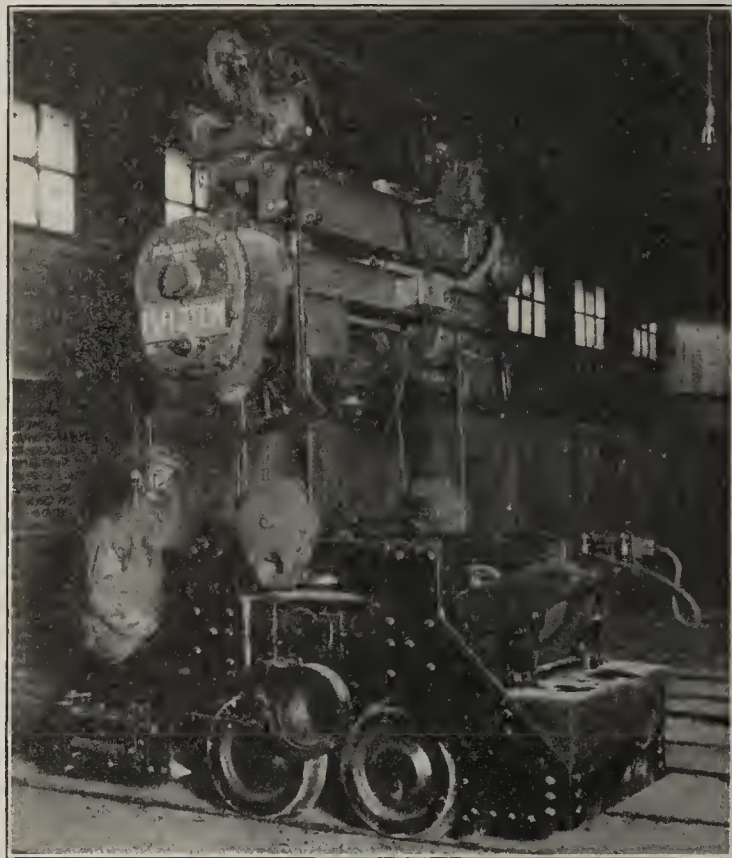


Fig. 2. The Locomotive on the Rail for Going Into Tunnel. To Align the Wheels with the Rails Before Lowering, the Operator Matches an Arrow on the Crane with a Line on the I-Beam Which Carries the Crane.

From an inspection of the above, it will be readily seen that the conditions imposed were very severe. A narrow gage of 24 inches, high temperature in the tunnel, corrosive action, speed of operation for output, and necessity for handling work without jar to wet bricks are things not usually encountered in locomotive practice. In addition to

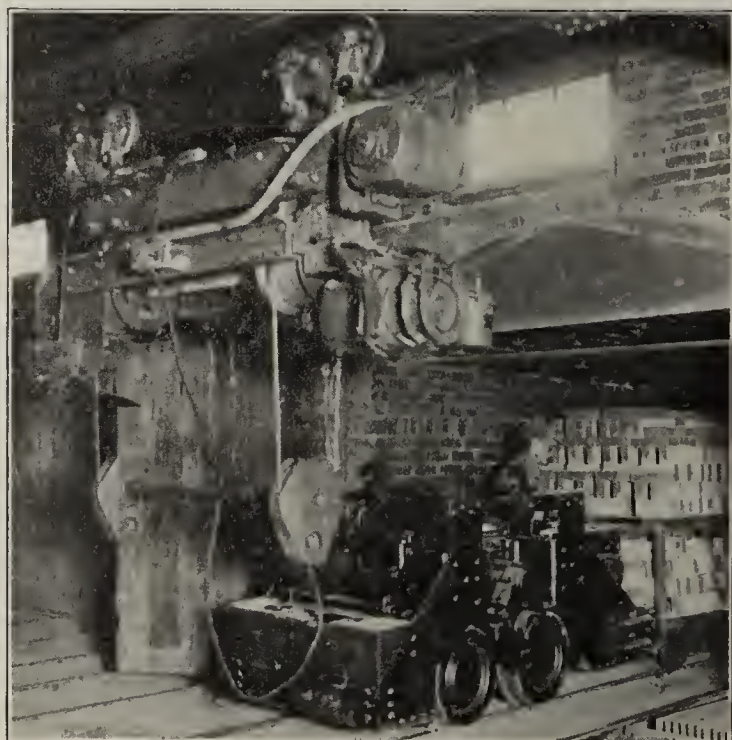


Fig. 3. Locomotive Making Contact with Car Without Jar. Note Lifting Bar in Position for Re-engaging Locomotive Lifting Hooks.

PLANT BETTERMENT



Fig. 4. Locomotive "On the Cable." Note Cable Is Taut and Off of the Ground, and Requires No Attention on Part of Operator.

this, the short overall length further complicated the problem.

A Goodman 3-ton type 1600-K locomotive equipped with a cable reel geared to the axle, was selected for the following reasons:

- (1) Dynamometer tests showed that drawbar pull required to move the 17 cars when a brick placed on the rail with the long side parallel to rail was crushed, was well within the limits of this particular unit.
- (2) The locomotive could be built with an overall length of 7 feet 5 inches.
- (3) On account of its light weight it could be easily transported from track to track by means of a pendant operated 3-ton monorail crane.
- (4) Power taken thru the cable reel, which operates in a manner to keep the cable taut at all times and off the ground, is in the tunnel only when the locomotive is in there.
- (5) The locomotive can be operated by one man.
- (6) A combination of slow speed motor, large capacity in starting rheostat and a specially designed coil spring bumper permits contact to be made and load to be started without any jar whatever.
- (7) A 3-ton Pawling and Harnischfeger type "V-3" monorail



Fig. 5. Locomotive in the Tunnel. Note Taut Cable.

crane running on a transverse I beam as shown in photos left limited space for lifting locomotive. The low overall height of locomotive permits ample space for clearing the rail about 6 inches.

The Goodman type 1600-K locomotive consists of a single motor driving both axles thru a spur gear reduction. The motor shell forms the backbone of the locomotive. This type of drive is peculiarly adapted to the work in hand, because of the fact that with all four wheels geared together so that none can slip unless they all do, maximum tractive effort per ton of weight of locomotive is obtained.

Power is taken from the crane line thru the cable reel. The reel is geared to one axle so that no attention on the part of the operator is required for this auxiliary. It is automatic in its operation. The side plates are connected to cross members and substantial hooks for lifting the locomotive are mounted on these cross members as shown in the photos. The sequence of operations is shown in the captions to the several illustrations.

The operation is safe, fast and economical. It requires one man and less than 9 kilowatts of power. I. N. Doughty, general superintendent, tells us that it is most satisfactory in all respects. Before this apparatus was installed, three

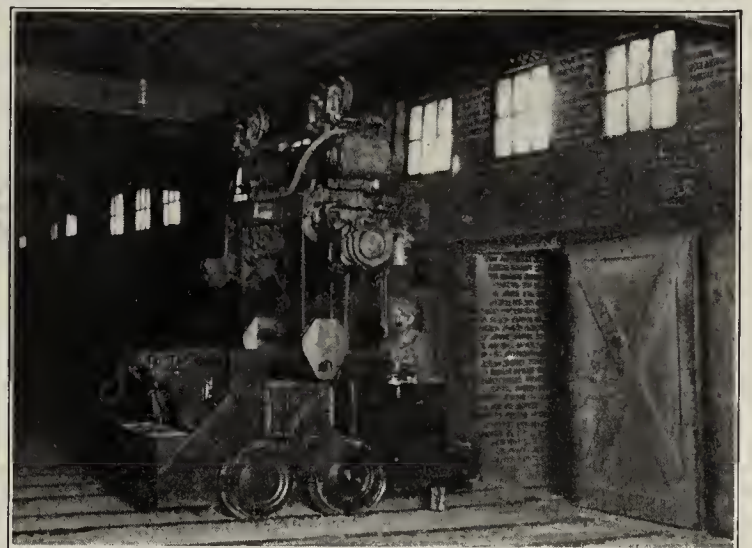


Fig. 6. Locomotive Re-engaged on Hooks Ready for Transporting to Any One of 55 Tunnel Tracks.

men had difficulty in pushing the cars down. Now one operator does the work with ease and has considerable time to spare for other work. If you only figure these two men at \$4 per day, there is a saving of \$48 per week, and this is very conservative, says Mr. Doughty. At this rate it will not take long for the apparatus to pay for itself.

The photographs accompanying this article, were supplied thru the courtesy of the Goodman Manufacturing Co., and tell the story of this installation very completely.

* * *

Every human institution must either go ahead or go backward—there is no standing still. If you are not constantly improving your plant, it is surely going backward, and sooner or later you will be forced to join the many who own a dismantled plant.

No man ever won a race looking backward. Prepare your plant for the future.

Create Federal Coal Commission

Coal Industry Over-Capacitated and Over-Capitalized—Clay Products Industry Suffers from Shortage—Will Enter 1923 without Stocks

ONE OF THE FIRST constructive steps toward finding a permanent remedy for the coal situation was taken when Congress approved without change, the administration bill creating a federal commission to investigate the coal industry. This commission will attempt to stabilize the coal industry with a view to preventing the recurrence of strikes.

For five months production of bituminous coal was maintained at a level of less than 45 per cent. of the amount which is adequate for the country's need. During practically the same period, railroad shopmen were on strike, causing the number of bad order cars and locomotives to mount into appalling figures. As a result of these two calamities the nation's ordinarily smooth progress has again been disrupted, and we are once again slowly battling our way back to normal. The strikes have been settled, but there is no assurance that next year or the year after the country will not be required to undergo the same agony once more.

Railroads Can't Haul Enough Coal

Coal, in the majority of cases, is the all-important problem with which the clay industry must wrestle. The miners have gone back to work and bituminous mines are now in a position to produce more than 13,000,000 tons of coal per week. This is sufficient to bring the total for the year up to a normal year's production. But, (and there is always that miserable word to contend with) coal does industry no good unless it can be shipped and the shopmen's strike has so increased bad order rolling stock that the railroads are in

materials and others provided the destination of these materials is not to a point beyond the mines for which the cars are bound. The use of the cars, however, must not materially delay or minimize the production and shipment of coal. It is urged that all cars be unloaded within 24 hours after their arrival and carriers have been asked to blacklist anyone who delays unloading.

Coal Priorities Removed

Priorities of coal to public utilities and other preferred classes have been removed. Such commodities as mine supplies, medicines, fertilizers, seeds, newsprint paper and petroleum and its products in tank cars, in addition to food for human consumption, live stock and feed, perishable products and fuel, have been given priority over the shipment of other commodities.

The measures above mentioned help to relieve a very bad situation. But they only **help** and no amount of priority orders or embargoes can actually afford a complete relief.

The clay industry is indeed very seriously affected. During the strikes, shipments of clay products were considerably curtailed. Many plants with a reserve stock of coal, and who were therefore in a position to manufacture, found the car supply entirely inadequate to take care of the shipment of their orders. The result was that the order file and the stock pile both grew to great proportions. Then there were many plants who could not get coal to manufacture, with the result that their stock pile dwindled to nothing while their order file filled up. Where these situations obtained plants are anywhere from one month to four months behind in filling orders. Now that the labor controversies have been settled, clay products plants are producing and shipping as fast as possible, filling back orders. There are probably two more months of the season remaining during which time clay products manufacturers must catch up on their back orders. This season's demand will consume the entire production of these two months. The almost inevitable result will be that the clay products industry will begin the season of 1923 with almost no stocks.

Mines Over-Capacitated

Bad as the situation described is, yet industry has been thru just this thing before and what is more deplorable, there is absolutely no assurance that next year or the year after business will not have to go thru the same operation and again spend valuable weeks convalescing. There is, however, a tiny rift in the clouds obscuring the bituminous coal problem which may let the sunlight in on a brighter future. This cause for hope lies in the establishment of a federal coal commission, which will investigate the business of mining fuel with a view to establishing it on a scientific basis.

The coal industry is at present on anything but a scientific basis; on the contrary, it is in an extremely unstable condition. It is over-capitalized and over-capacitated. The total annual capacity of the bituminous mines is 850,000,000 tons, which is 300,000,000 tons greater than our national requirements. There are 200,000 miners more than necessary and 2,500 too many bituminous mines. In the best year of their history the bituminous mines operated an average of only 249 days in the year, out of a possible 308, whereas in most years the average is about 210, as against about 295 days in England and over 300 days in Germany. If from this are subtracted the mines which are operating regularly for certain

WILLIAM SCHLAKE, President, Illinois Brick Co., Says in the American Contractor:

"WE have not increased our price, as you know, despite the fact that one of our chief items of cost in manufacture has risen to almost dizzy heights. I refer principally to coal, and also to oil. The other chief items of cost in the production of brick are, as you know, labor and transportation.

"We believe that if other material interests would pursue the course that we have pursued, we might look for continued building prosperity. Of course, we are hoping that fuel prices will be reduced in the near future so that the grief we are now taking will not be of long duration.

"I have always believed that it was short-sighted business policy to transmit immediately to the public every bit of increased cost in production that is sure to arise from time to time, and unless this increased cost is of so material a nature as to make the carrying of the burden utterly impossible, I have always felt it best to absorb such increase."

a position to haul less than 10,000,000 tons of coal per week. This situation is making itself felt in the clay industry and others that are large consumers of coal.

The inability of the railroads to cope with the situation has resulted in the issuance of numerous orders affecting the use of cars for purposes other than for shipments of coal. Most clay products manufacturers are familiar with the orders which restricted the use of open top cars more than 42 inches in height to the hauling of coal. An order becoming effective September 20 intended to relieve the situation to some extent, permits the use of open top cars returning to the mines for the transportation of road and building construction ma-

metallurgical and railway supplies, we find that the situation is even worse, for the remainder of the bituminous mines are probably operating an average of less than 180 days, or over 120 days lost time out of the year.

Certainly this industry is extremely unsound and badly organized. Perpetual labor difficulties are the natural out-

come of this impossible condition, and the only way the country can be relieved of the constant menace of uncertain coal supply is to put the coal industry on a reliable and stable basis. The creation of a Federal Coal Commission may be the means of dragging the bituminous coal industry out of the mire of its own wasteful inefficiency.



H.B.T.A. Decreases Dues 50%-To Increase Membership 100%

ONE of the first things to engage the attention of J. S. Sleeper, the new secretary of the Hollow Building Tile Association, and his aids is a membership campaign—by which it is hoped to increase the membership of the association by more than 100 per cent. A. G. Osterberg, formerly field engineer, has been given full charge of the drive for members, which will be conducted among manufacturers of tile thruout the country. Mr. Osterberg will also be group secretary for the Hollow Building Tile Association in charge of Group Meetings in various parts of the country. He has been with the association three years.

Mr. Osterberg has had considerable experience in the hollow tile industry, his first experience being with the National Fire Proofing Co. of Chicago. He was very active in promoting tile for loadbearing walls and was one of the pioneers in this field. Later he became sales manager for the Calumet Supply Co. of Gary, Ind., which company specialized in tile and brick. His earlier experiences were with architectural and engineering firms.

Simultaneously with the announcement of the drive for members comes the rather surprising information that dues have been cut 50 per cent., effective September 1. This brings the dues of the association down to five cents per ton and makes it possible for every manufacturer of hollow tile to participate in the work which the association is doing. It is not intended to make any changes in the advertising program of the association or the scope of its work.

One other important announcement has been made by the Hollow Building Tile Association office and that is the acquisition of W. S. Elton as representative in Ohio of what is known as "Group 2," comprising Ohio, Michigan, Western New York, Western Pa., and West Virginia. This branch office is located at Toledo and was opened October 1.

Mr. Elton is a tile manufacturer from Iowa where he

organized the Iowa Clay Products Co., operating four plants near Washington, Ia. He recently disposed of his interests, however, and will now devote his entire time promoting the tile industry in the territory above mentioned. Mr. Elton has a thoro knowledge of both the manufacturing and sales ends of the tile business, which will fit him especially for the kind of work he will do. He was born and raised in Akron, Ohio, and is a graduate of Buchtel College. His first experience with the clay products industry came in 1904 as representative of manufacturers of tile and brick manufacturing machinery. He sold and installed the plants of the Simons Brick Co. of Los Angeles, Cal., and the Salt Lake Brick Co., of Salt Lake City, Utah. In 1910 he organized and built the tile plant at Richland, Ia., which he operated until 1919 when he organized the Iowa Clay Products Co. at Washington.

In this connection it is not amiss to mention the service which the association is rendering the tile industry as a whole, especially in a technical way. Chas. C. Crockatt, chief engineer of the association is doing valuable and important work in connection with the changing of building codes in various cities of the country, to assure a fairer representation of hollow tile in these codes. Mr. Crockatt, who is also associate editor of the Permanent Builder, does considerable work of an advisory and consulting capacity regarding construction problems appertaining to the use of hollow tile. He also has charge of the associations technical literature, such as the Manual of Hollow Tile Construction, the association's plan service, the hollow tile handbook and other things. He has been with the association three years and since he left the University of Illinois ten years ago has spent practically his entire time in the clay products industry. Mr. Crockatt will continue his work as chief engineer of the association.



W. S. ELTON



CHAS. C. CROCKATT



A. G. OSTERBERG

Business Briefs and Trend

BUSINESS CONTINUES AT HIGH LEVEL

Figures so far received by the Department of Commerce indicate that there was no significant recession in business activity during the month of August, in spite of the dislocation caused by the coal and railroad labor difficulty. There was a marked decline in the production of iron and steel, largely due, no doubt, to fuel shortage. The unfilled orders of the Steel Corporation continued to increase indicating no apparent let-up in the demand for these products.

The building industry showed the effects of the usual seasonal slump but the production of building materials continued at about the same level as in July.

The practical assurance of good crops has done much to keep business at its high level during the recent trying months. Altho prices of farm products are still comparatively low they are better than a year ago; furthermore, this year's crops have been produced at a much lower cost than last year's, with a resulting better net income to the producer. The effect of this has already been seen in the increased sales of farm equipment and the larger business by the mail-order houses.

Freight-car loadings showed a marked increase over the preceding month and were far greater than a year ago. The large surplus of idle freight cars reported by the railroads a few months ago has practically disappeared.

The real progress which business has made this year can best be appreciated by comparing present levels with those a year ago. In almost every instance there is a significant increase which in many cases amounts to 100 per cent. or more.

FARM PRODUCTS SHOW BIG INCREASE

The Farm Journal estimates \$13,650,000,000 as the total value of farm crops and livestock produced in 1922. This is an increase of \$1,284,000,000 over the \$12,366,000,000 produced in 1921. This ten per cent. increase is all profit—and more, for this year's crop has cost less to produce. No more acres were planted, less labor has been hired and laborers' wages, fertilizer and other expenses were much lower.

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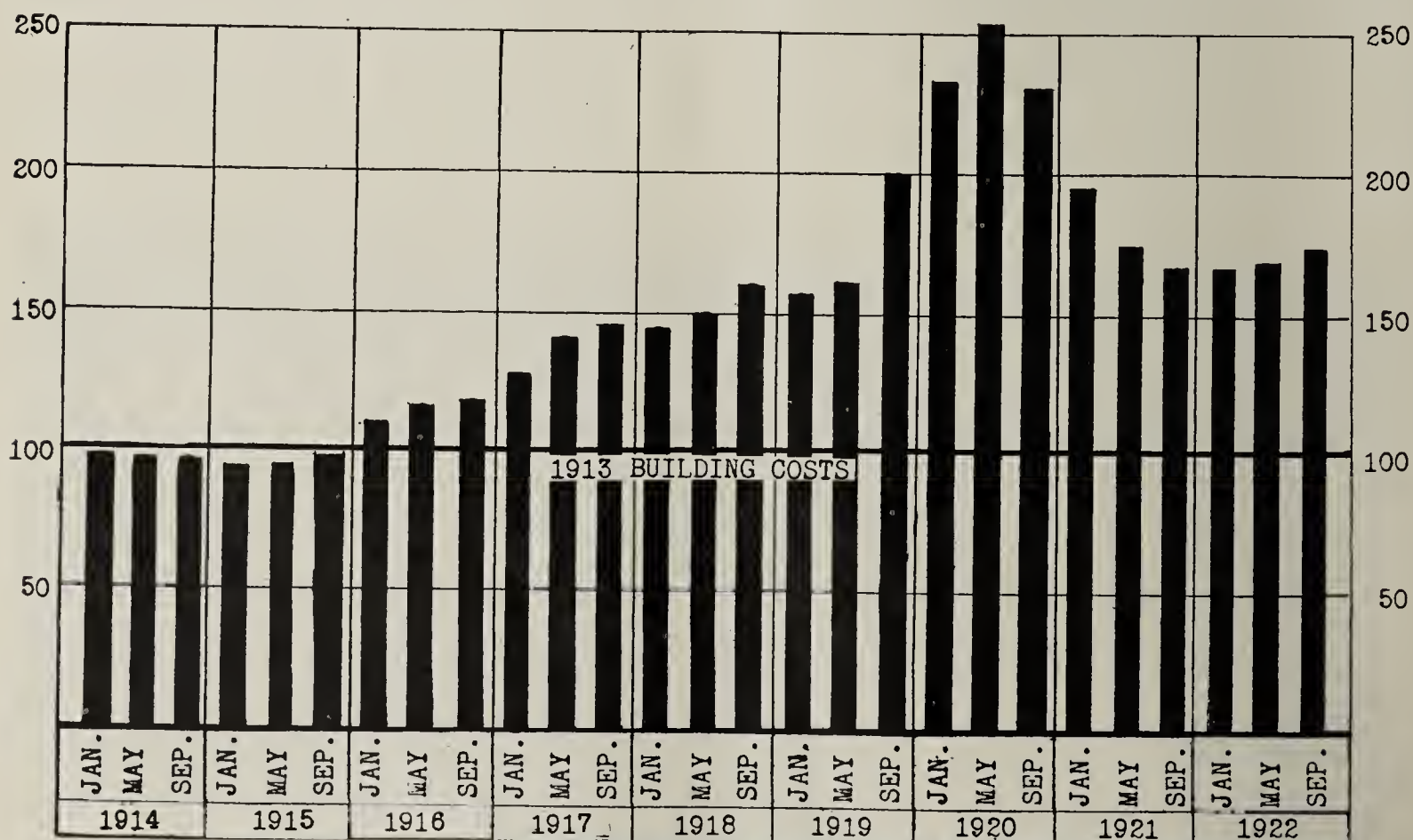
AUGUST COAL OUTPUT GAINS 51%

The output of bituminous coal in August totaled approximately 25,800,000 tons, compared with 17,000,000 tons in July and 34,548,000 tons in August last year. Anthracite production showed no substantial change from the preceding months since mining was not resumed until after the close of August. There was a marked decline in the production of by-product coke altho beehive production increased. Both movements were considerably larger than a year ago. The price of coke advanced from \$10.75 in July to \$12.80 per ton in August. The prices of coal also made sharp advances with an increase in the mine average for bituminous of \$1.25 per ton, compared to July.

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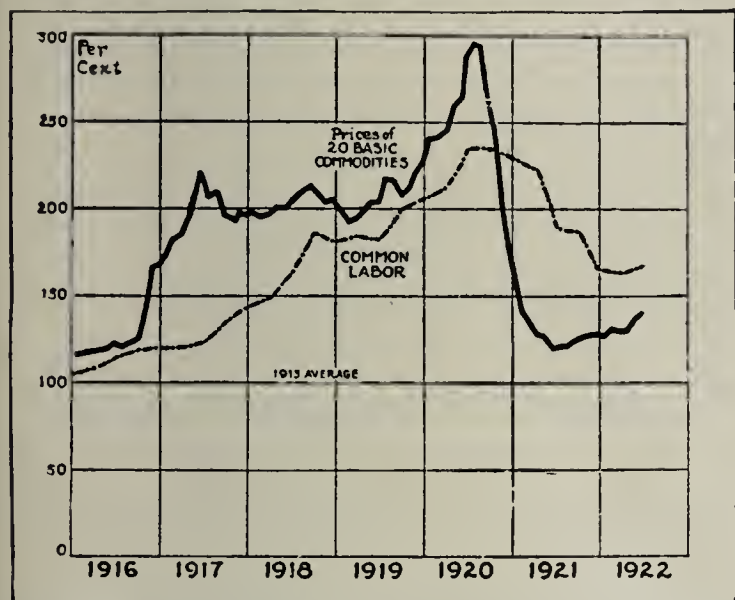
BUILDING COSTS 75% OVER 1913

Building costs, as is apparent from the diagram below, are now 75 per cent. higher than they were in 1913 and exceed the corresponding figures for any month prior to May, 1919. From 1914 to 1920 building costs rose steadily, reaching their high point in April of 1920. From then on until May,



The Rise and Fall of Building Costs in the Last Nine Years. Figures on Side of Chart Indicate Per Cent. 1913 Costs Represent 100 Per Cent. Figures Taken from Index.

1921, their decline was fairly rapid, but the tremendous impetus given construction about that time served to hold them fairly steady. During the four months from May to August, 1922, an increase of seven or eight per cent. was effected.



Wages of Common Labor Compared with Prices of Basic Commodities; 1913 Average Equals 100 Per Cent.—From Federal Reserve Bank, N. Y., and Printed in Industrial Digest September 16, 1922.

GIVES BUSINESS TWO MONTHS TO RECOVER

If the next 60 days can be passed over without any actual industrial shutdown due to lack of coal, Secretary of Commerce Hoover is of the opinion that the economic loss arising from the coal strike will be slight. During the middle of September he stated that about 60 days would be required to straighten out the transportation tangle which the strikes developed. Altho the level of farm prices is below what it should be this will in all probability rise to normal when deliveries improve.



TO UNIONIZE FIRE BRICK AND TILE PLANTS

It has been reported that a resolution calling for special efforts to completely organize all men employed on fire proofing and fire brick plants, was passed at the annual meeting of the clayworkers' union. This was the annual national convention of the United Brick & Clayworkers' Union, held in Streator, Ill., on Monday and Tuesday, September 18 and 19.

President Walker of the Illinois State Federation of Labor addressed the convention, and appealed for a continuation of the union labor movement stronger than ever. He denounced the open shop movement as a thrust at the working man's principle means of protection and progress. He declared that the fight for open shop was apparently being centered in Streator.

The convention was given over to routine business, appointment of committees, discussion of matters relating to organization, discussion of court injunction as an instrument in labor troubles, and to the listening of other speakers.



The Building Situation

WITH REGARD to the building situation thruout the country, S. W. Straus & Co. says:

"Altho the peak of building activities for the current season has been passed, construction work is maintaining a volume in accordance with the remarkable record for the year. There is every indication that, barring the usual seasonal interferences, building will continue in unprecedented proportions."

"As the season approaches its final stages, there is a tendency toward more industrial construction and it would not be surprising if a considerable development of this nature were witnessed in the near future."

New England

The past fortnight in New England shows a noticeable increase in industrial operations and it seems likely that the fall season will develop substantially in this direction. Boston is coming forward with a number of five-story apartment houses for fall and winter operation. Contracts in this district are now reaching from \$6,000,000 to \$7,000,000 weekly, as compared with an average of \$5,000,000 at this time a year ago.

Reports from the principal cities in Connecticut show a total volume of permits issued for the first week in September for \$668,200, as compared with an aggregate of \$362,900 for the same cities in 1921, and \$343,900 in 1920.

A review of the situation at Providence, R. I., shows a marked increase in residence construction in recent months, bringing up the volume of permits issued by the local office to close to 4,000 up to September,

Operations Recede at New York

There is a slight falling off in construction at New York, with Manhattan Borough taking the lead in the recession. The Brooklyn district is more than holding its own, and is the only borough in which a decline is not recorded. During August contracts to an amount of \$44,600,000 were awarded in this section.

Bricklayers' helpers at New York are becoming uneasy, and with two rival unions operating in this section, the situation is not entirely satisfactory. While a strike is threatened, it is possible that the difficulties will be smoothed out.

The troubles of the brick producers in the Hudson River district are more than ever appreciated from an inspection of some of the material that is now reaching the New York market. Lacking anthracite coal for burning, bituminous coal, coke and other fuel has been utilized for service, and the brick shows it. The material is of decidedly poor grade, and with heavy cargoes arriving, there is liable to be a large surplus of this stock. Up to the present time, the effect has been to bring a reduction from \$20 to \$18 a thousand wholesale for first class material, while the poorer quality brick is being sold from \$15 upwards. The first weeks of the month shows a decline in call, and from 20 to 25 cargoes weekly now remain unsold.

New Jersey

The month of August showed a marked increase in construction in the different important cities in New Jersey,
(Continued on page 499)

Plan "Better Homes Week" for Nation

October 9 to 14 to Be Demonstration Week for Better Homes Movement—Project Backed by Country's Leaders

TOPPING two years of "Own Your Home" movements and propaganda intended to arouse the public of this country to a sense of pride in the owning of a home, is the movement for a "Better Homes in America" Demonstration Week, October 9 to 14.

This is a movement which has been projected by the Delineator, a home magazine of national circulation. It is nation-wide in scope and carries as endorsement the signatures of such men as Calvin Coolidge, vice-president of the United States; Herbert Hoover, Secretary of Commerce; Henry C. Wallace, Secretary of Agriculture; James J. Davis, Secretary of Labor; John M. Gries, Director Division of Building and Housing, Department of Commerce; Julius H. Barnes, President Chamber of Commerce of the United States; John Ihlder, Director Housing Conditions, Chamber of Commerce of the U. S.; and a long list of other prominent men and women, among them the present governors of 25 states.

Purpose of Movement

The purpose of Demonstration Week is to impress upon the attention of the American people the importance and advantage of building homes and better homes. The very name of the movement "Better Homes in America" is evidence that manufacturers of clay products are vitally interested, for homes built of clay products are better homes.

The successful instillation of the "Better Homes" idea into the minds of the public can mean a great deal to the manufacturer of clay products. Certainly the idea is worthy of his wholehearted support.

The campaign in each community centers about a Better Home—completely equipped, furnished and decorated, in accordance with approved modern practice, and placed on exhibition during Demonstration Week. Manufacturers should work with local commercial organizations, such as Kiwanis, Rotary, Lions and other organizations which are striving to put this campaign over. The method of conducting the Demonstration Week is outlined in a 53 page Plan Book, copies of which can be secured from Mrs. W. B. Meloney, Secretary Advisory Council, 223 Spring St., New York City.

Hoover Urges Participation

The significance and desirability of better homes in America is set forth in a letter from Herbert Hoover, wherein he gives his hearty endorsement of the "Demonstration Week" idea. Following is an excerpt from his letter:

"While we are about Better Homes for America and are lending such indirect support to the movement as the government, states, counties, communities, and patriotic individuals and organizations can rightfully give, let us have in mind not houses merely, but homes! There is a large distinction. It may have been a typesetter who confounded the two words. For, curiously, with all our American ingenuity and resourcefulness, we have overlooked the laundry and the kitchen, and thrown the bulk of our efforts in directions other than those designed to make better homes by adding to the facilities of our very habitations. If, in other words, the family is the unit of modern civilization, the home, its shelter and gathering-point, should, it would seem, warrant in its design and furnishing quite as large a share of attention as the power plant or the factory."

"We believe, therefore, that in every community in which it is possible a 'Better Homes in America' Demonstration should be planned and carried thru during the week of October 9 to 14, 1922."

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DOES BRICK PAVEMENT NEED BETTER ADVERTISING?

The New York Times of August 26 gives paving brick an excellent boost in the following story:

"A way has been found to utilize old brick and granite block street paving in the reconstruction of pavements under which the artificial base has been disturbed. A recently conducted survey shows that this form of economy in street and highway paving is saving many tax-burdened communities thousands of dollars. It has been put into practice in States as widely separated as Florida, Illinois, Mississippi and New York

"Numerous American cities, says the report of the survey, find themselves with brick or granite block pavements ranging in age from 20 to 30 years or more. In some instances, these old pavements show signs of roughness. Traffic such as that which has passed over them since the advent of the heavy motor truck was not expected at the time that these pavements were laid. Many of them have no foundation other than the natural soil. The thin artificial bases of others were adequate only for light or medium traffic. The heavy traffic of today has disturbed the thin base, resulting in a rough street. This situation was met in many cases by resurfacing—applying a resurfacing coat over the brick or block—but the trouble usually reappeared and the frequent patching of the new coat was found to be expensive.

"The engineers who started to investigate the situation found in the majority of cases where roughness of surface had developed that the brick or blocks themselves, because of their toughness and density, were uninjured for the most part, often the upper surface only being slightly worn. From this fact developed the practice of removing the brick, constructing a better base and relaying the brick, turned over and with asphalt applied between the joints. In utilizing granite block it is often recut.

"Many cities have adopted this practice in preference to costly-to-maintain surfacing. The brick or blocks, despite their years of service, are found to be practically as good as new, it is said, as far as wear is concerned, and with a more substantial artificial base a pavement good for another generation is often obtained.

"As an indication of how widespread this practice has become in recent years, the survey points at random to the following as a few of the cities that have adopted this method of renewing pavements: Meridian, Miss.; Pensacola, Fla.; Tonawanda, N. Y.; Alton, Ill., and Lancaster, Ohio."

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PITTSBURGH TO GULF BARGE SERVICE IN SIGHT

Henry C. Kleymeyer, president of the Standard Brick Co., Evansville, Ind., Southern Brick & Tile Co., Louisville, Ky., and West Point (Ky.) Brick & Lumber Co., also interested in other brick companies, is president of the Chamber of Commerce at Evansville, Ind., and as such has appointed a committee of leading business men, to work with him in a plan for purchase of a strip of land on the Ohio River front

on which transfer terminals for handling river and rail shipments can be constructed. At Louisville, Cincinnati, New Albany, Jeffersonville, and other points combination terminals are being installed, as work on the nine foot year-round stage in the Ohio is beginning to get somewhere. Correct types of terminals are needed in order to make it possible to make use of the river as a real means of transportation. It is believed that with completion of government work on the Ohio River the government will establish barge lines similar to those on the Mississippi, which will result in thru service from Pittsburgh to the Gulf.



PROPOSE TO CUT DOWN IMMIGRATION

New legislation restricting immigration almost to the point of exclusion was outlined recently by Representative Johnson (Wash.), chairman of the house immigration committee.

He expressed the opinion that the country "seems to want complete suspension of immigration," but contended that this was impracticable.

Measures urged by Mr. Johnson for tightening up the present law included the following:

"Reduce the percentage figure to two per cent. or even to 1½ per cent., thus lowering the total number of admissibles.

"Treat immediate families as units, admitting the husband, wife, or children of citizens of the United States and aliens permanently domiciled here.

"Perfect the illiteracy test by providing authority for the exclusion of the mentally inferior and the emotionally unstable classes.

"Provide for more thoro physical examination of immigrants by authorizing the modern blood test.

"Limit all immigration to persons eligible to citizenship, once and for all time disposing of difficulties which have arisen by reason of the heavy colonization on our Pacific slope of unassimilable alien races."



EXTRACTING ALUMINUM FROM CLAY

Discovery of a method of producing alumina, the basic element in manufactured aluminum, from clay has been made by Hiroshi Tanaka, attached to the department of agriculture and commerce of the Japanese government. This may be of considerable significance to industry.



Indications Are New York Will Need Many Brick This Winter

RISING PRICES of basic building materials is hastening the resumption of commercial construction work, and, incidentally, is quickening the industrial construction movement in certain sections, says the Dow Service daily building report of September 23, 1922.

For the purpose of ascertaining the probable requirements for common building brick in New York between now and resumption of brick manufacture next spring a building material dealer took a census of all construction operations classed as big brick consumers and reported 54 in Manhattan, which is considered to be an exceptionally large number to be getting under way for this season.

Most of the fundamental conditions, making for prosperity in the building trades, are present in most of the economic surveys of the present day. There are some authorities who believe the country is headed for a period of general expansion. Certainly there is significance in the fact that the American Telephone and Telegraph Co. plans to spend \$15,000,000 in building construction to provide for its growing business.

Basic building materials are passing into the winter with little or no reserve stock in proportion to the demand as now estimated. Recent contemplated construction work is about half as great again as it was last year, but there is a tendency in residence and big speculative habitation projects to postpone contract awards in expectation of lower building material prices and wage rates.

Price Tendency Is Upward

Building metals have of late years been fairly barometric of basic building material price movements. For some time they have been moving upward. Lumber is known to have a leading effect upon masons' supplies and the price of that building commodity has been advancing or stiffening since the opening of the first half of the year. In basic commodities like brick, cement, lime, plaster, hollow tile, asphaltum and paint ingredients, manufacturing schedules for the year have been disarranged by the fuel scarcity and at present by the difficulty of obtaining cars.

These factors have resulted in upsetting delivery schedules,

and have made it difficult to obtain raw materials. Under such circumstances producers are not so much concerned with obtaining a large volume of new business as they are with the problem of unloading their present contracts, often taken at prices below present market levels.

There is a nice volume of business being offered at the present time. Much of it is being accepted based upon market price at time delivery is made, a stipulation that does not promise much in the way of lower prices until far into the season of 1923.



SPAIN SLIM MARKET FOR U. S.

Interesting figures and information are contained in a letter recently received from Keith Merrill, American Consul at Madrid, Spain. Speaking of importations of brick in Spain, Mr. Merrill says the following:

"Under the customs records in force up to the first of the current year, there was no especial classification for fire brick; but of common brick of ordinary clay, of glass and china there was some export. In the Customs records, under Part 44, there are included brick, brick for fire boxes, water closets and other refractory objects and those which are imported in the following manner:

		Kilograms	
	1919	1920	1921
Germany	3,775	1,059,761	1,367,593
Belgium	216,100	176,519	1,572,552
France	1,515,492	663,254	1,528,507
Great Britain	4,177,160	1,963,721	1,503,806
Other Countries	147,501	337,411	311,542

"According to information from various sources, the production in Madrid is greater than the local consumption, and provides for a certain supply for those provinces where there are no factories.

"The clay for the manufacture of these brick is obtained from near Madrid and Villaverde, La Granja, Segovia and other points where there are pits of white china clay and other clays suitable for this manufacture."

The Philosophy of Trade Associations

Whether or Not You Are an Association Man, You Will Find This Unusually Complete and Well Written Dissertation on Trade Associations Well Worth Reading

O. B. Towne *

Secretary, Waxed Paper Manufacturers Association

This address by O. B. Towne was made before the National Trade Association Executives. The ideas expressed represent a tremendous amount of study and research. The knowledge gained from 11 years' experience as a commercial and trade secretary as well as a study of more than 25 books, treatises and reports are reflected in this article, and have been used as a basis for developing the "Philosophy of the Trade Association." Anyone who desires it can secure from Brick and Clay Record a copy of the bibliography of works studied by Mr. Towne in connection with his treatise.

WHEN HUMAN NATURE first recognized ethical responsibility, civilization was born. When relative desirability brought forth a sense of values the principle of economics was discovered. Barter and trade became commerce and industry, and, with an ever increasing crescendo of importance and power, commanded the attention and best efforts of human intelligence. Commerce and industry recognize no time, no political boundaries, no nationality, no latitude or longitude, no race or creed. They are elements of a great system of fundamentals, and embody the economics of human relationship and the gratification of humanity's ambitions and desires.

Life was originally wild and its human relations were primitively social and military. They were social, for man is a social being. They were military, for the nature given sources of food were necessary to life. Organized and instinctive protection of these sources was simply natural law in operation.

In primitive civilization, the family gathered from natural sources, or produced in its primitive way sufficient to satisfy its material desires. The only strife was for the possession of coveted areas of food supply. This strife was military in its essence and aimed at the annihilation or the enslavement of the opposition. Military might was the only competitive method known, and was immediate and final argument.

The Growth of Competition

Families multiplied into tribes. Greater territory was covered. Some were producers thru the cultivation of the soil, or thru the adaption of its products. Some distributed these products or bartered their surplus in exchange. Thus industry and commerce were established as essentials.

So long as new fields remained to be occupied barter and trade offered too many opportunities to permit of discouragement. The world was new. When the pressure of competition became great, the flood tide of human ingenuity spread to new fields of endeavor. There are always new fields to conquer. Commerce grew. Industry grew. Science and art, discovery and invention, flourished and absorbed the sur-

plus population, occupied restless minds, softened the nature of the struggle to live, and developed the constructive, in addition to the competitive, thought.

Men Seek Protection

With the growth of human thinking, men realized that they never outgrow the age old instinct to seek protection, in one another, from the storm and stress of the times, and from events and men. When man seeks protection, anyone, similarly perplexed, is a friend. With him there is common cause and together the common enemy is fought and the common problem solved. A common need is to be met by common effort.

Commerce and industry in the early middle ages "became so complex," says Prof. Foth of Kalamazoo College, "that men must do cooperatively the things they could not do individually." They cooperated for common protection and to their surprise they found strength instead of weakness, peace instead of war. Then men understood that cooperation means organization. A discovery had been made. Security had apparently been discovered in the midst of strife.

Thus it was that organization in a common field, for common protection, and for the solution of common problems, came into being—an economic evolution, it was, whose beginnings date far back into the shadowy past, to the time when men in barter and trade sought livelihood thru strife and competition and longed for a more peaceful way.

The Beginning of Cooperation

A partnership of persons, or groups of persons, had been found possible in the strife for the commonweal. In this crude beginning we find the essence of the Trade Association. The individually weak sought the strength of organized numbers. The individually strong, seeing possible disaster to the strong in disaster to the weak, sought self-preservation thru the protection of all.

The Ground of Common Understanding

The basis on which men cooperate is in the ground of common understanding. It is in many respects like the philosophy of the common denominator. This philosophy is easily stated.

Take two numbers—24 and 36. The common denominator is 12—add another, say 42, and the denominator is at once reduced to 6. Add another—52 and it is reduced to 4. Add 53 and the denominator is reduced to 1.

The application is just as simply stated.

Take two manufacturers of similar training and education, and the ground of their common understanding is large. Add to the group a man in the same line of industry from another part of the country. The ground of common understanding is at once reduced. Add a man of different education, who has forced his way into the industry and has practically everything to learn. The ground is still further reduced. Add to the group men who have only one ideal, money, also the idealist, the hardheaded man who has come up from the

*Courtesy of the American Trade Association Executives.

bottom, and the inventive genius who reaches out for the new and untried. The ground of their common understanding has so shrunk that it is well nigh impossible even for a shrewd diplomat to reach them all at the same time and weld them into an operating entity.

Yet that is the problem, abstractly stated, which has been faced and handled since organized effort in commerce and industry was first undertaken.

The Beginning of Association

In spite of the difficulty of the task, organization of those engaged in commerce or industry, for the commonweal, is by no means a modern idea. The Greeks in the time of Solon are known to have had organizations of merchants which operated very successfully. The Romans developed the same idea in the Collegia. The Roman organization sought, among other things, to smooth out differences among its members so as to do away with law suits as much as possible. This form of organization lived until it became powerful and sought to extend its power beyond the limits of its purpose to compel special privilege, to force itself into the politics of the empire and to extort unrighteous gain. Then it declined and ceased to be.

In continental Europe and in England commercial and industrial organizations are known, authentically, to have existed in the tenth century A. D. The purpose in each case was protection. In England, highway robbery and piracy on the high seas were so common, and so galling to those who sought livelihood in commerce and industry, that organizations, called Merchants' Guilds, sprung up in many cities of the kingdom. They protected not only the transportation of goods, but also saved merchants, manufacturers and workmen from being kidnapped and forcibly held for ransom. During the turbulent times of the Norman Conquest, the Merchants' Guilds were so effective that their fame spread from city to city and guilds sprang into being in all parts of the British Isles.

Association in Continental Europe

In continental Europe the robber barons made life so uncertain for the merchant, and business success so well nigh impossible, that merchants organized as did the business men of England. Hansa Unions they were called. But there was this difference. The continental organizations (because whole cities were often given over to the manufacture and merchandising of one product only) developed such independence and municipal power in themselves that even kings and emperors had to reckon with them and to grant them special privilege. It is interesting to note that the activity of the Hansa Union was as effective against robber barons and pirates as was the activity of the English Guild.

But there were no restricting laws in those days and the Guilds regulated the quantity of goods to be manufactured, fixed prices, determined apprenticeships and determined who should enter certain fields of business—this was in addition to affording protection to commerce and industry and to those engaged therein. The Hansa Unions with government sanction could do even more than could the Guilds. For in-

stance, on the basis of the national good, the Hansa Unions fixed prices, regulated the amount of the product to be manufactured, monopolized the markets and absolutely crushed outside competition. Yet, quality seems to have been the great cry in both organizations. Cheating and fraud were looked down upon, discountenanced and even punished.

The Purpose Perverted

In England, after bringing peace and a measure of security to its members, the Guilds became aggressive. They tried to control government and to gain special privilege. Then they compelled unjust privilege and unjust gain. Too much of this aggression reacted, for, with special privilege, outlaw firms grew up, old established firms and branch Guilds broke away and became outlaws. Competition started up anew in the most wide open manner, until the internal cohesion of the Guilds was gone and disintegration set in. The lust for wealth and power and the extension of the influence of the organization beyond its legitimate field reacted to the downfall of the Guild.

Same History of the Hanseatic League

In the Hanseatic League, which was a league of Hansa Unions, there was tremendous success in the organization of merchants and of mercantile cities. The League secured concessions from governments with which it came in contact, it brought piracy on the high seas within control and fought the robber barons to a standstill. It even went so far as to make and unmake dukes, kings and kingdoms, by the influence of its wealth and power.

But too much power was bad. Too much politics was worse. International in its scope as it was, too many diversified influences of international importance divided the allegiance of its members. Too many jealous enemies among the nobility and too many disgruntled members in the League turned the tide, embroiled the organization and tore it asunder. The 30 years' war saw

the downfall of the Hanseatic League—perhaps the greatest effort at commercial and industrial organization ever known in history.

The Great Need of Cooperation

Among merchants, trades, professions and callings, a great common need made organization necessary and possible, amid the jealousies, suspicions, superstitions, racial hatreds and castes of ancient and medieval times.

It was the need of protection against common enemies—albeit these enemies might be individuals or conditions. The ancient world had been ridden by its nobility, each individual opposing the rest of mankind. As civilization advanced and grew more complex, that sort of individualism decreased. An interdependence for life and livelihood forced itself upon man's attention. In each individual line of activity there were tremendous abuses of human rights on every side. Outside sources of trouble and oppression were numerous. Progress seemed well nigh impossible.

In the soil of such conditions the seed of cooperation first took root. The ancient and medieval organizations grew slowly until men realized the benefits to be gained. Then they

One hundred thousand years ago, science tells us, the first evidences of the human being, as distinguished from the animals, began manifesting themselves. But this man was a savage, living by himself, procuring his own food, fighting his own battles. Gradually, very gradually, as civilization and evolution molded the mind and body of the near animal, making him finer, nobler, and giving him intelligence, he began to realize that his best interests were the joint interests of himself and his fellow men. And so gradually there were evolved organized villages and towns and cities.

Modern business has followed these same evolutionary steps and has realized that in organization lies its greatest chance for success.

flocked to the Collegia, to the Hanseatic League and to the Guild.

Lessons from the Ruins

In spite of the disaster which befell the Hanseatic League, the Baltic Basin and the Teutonic countries found stable government possible in the powerful influences for peace wielded by this organization. Central Europe was brought out of barbarism by its citizenry instead of its nobility. It was given a lesson in fundamental democracy which has never been forgotten. With it came the elevation of a middle class which has given to the world some of its great thinkers and leaders.

In spite of the downfall of the English Guilds, civil rights and justice were won by business for the people. Fundamental democracy was engendered and fostered during the troublous years from the Norman Conquest to the settlement of America. Even as the debt of continental Europe to the Hanseatic League, so to its Guilds England owes the early stabilization of its government and the founding of its democracy. All this was because internal abuses were corrected and external pressure was resisted, while protected genius gleamed its ideals from the best its cosmopolitan efforts placed within its eager mental grasp.

Conditions of the 20th Century

But what of today? Has the spirit of democracy kept its place in the ranks of commerce and industry? Haney, in his book "Business Organization and Combination" says: "In the field of human relations we are just where industry and commerce were 100 years ago—we do not trust one another." The Apostle Paul said, "Now faith is the substance of things hoped for, the evidence of things not seen." Some elements in the Apostle's definition of faith are conspicuously absent in modern commerce and industry. Even after "The cards are all on the table," we are still suspicious. There is a possibility of some things being left unseen.

This was the problem in ancient times and will be the problem until the millennium. We can't change human nature in a generation. It takes ages. Rome was not built in a day. It took hundreds of years—and even then they forgot the sewer system.

We Cannot Escape Interdependence

But "no man liveth unto himself alone." The thousands of years of human struggle toward civilization attest this truth. Sociologically speaking, man has long since ceased to be an individual and has become a component part. Man produces little of what he needs for life and livelihood. Commerce and industry have submerged him in the generationless, nationless, raceless principle of economics. Yet he is still the motive power, the applying force and the operating genius of that principle.

"A business unit," says Mr. Haney, "is a more or less independent complex of land, labor and capital, organized and directed for production purposes."

Even so, a business unit does not live unto itself alone. Its very nature implies related units with sources of productive material, the machinery of production and an outlet for the finished product. It, too, is dependent. It fills only a niche in the great order of things economic. The larger the need the more room for new units to grow. Yet there are problems in common. Every phase of effort in the progress of the product, from raw material to its consumption, must be perfected. Every phase of human relationship in industry must be looked into and its status improved. This is especially true in troublous times when man's confidence in man lapses into distrust. This means cooperation, and cooperation means organization.

The Machine of Cooperation

Mr. Hurley, when chairman of the Federal Trade Commission, said, "Trade Associations are the machinery of cooperation. Thru them ignorant competition can be destroyed to a large extent, merely by throwing light upon it, and the basis upon which business is conducted can generally be made more intelligent. Trade Associations are, in a way which we do not yet appreciate in this country, the means of salvation for American business."

What Is at the Bottom of It All

But what are the basis and the principle of organization? The basis is the common problem of those associated in commerce and industry. The principle is justice.

Competition is selfish pugnacity to gain selfish and immediate benefits. While unrestricted competition sharpens the wits of those striving, the innocent public eventually bears the burden of the strife, and the greatest good to the greatest number is sacrificed to the doctrine "to the victor belong the spoils." Unrestricted competition is unnatural and fallacious, but constructive, intelligent com-

petition, together with studied cooperation is desirable and essential to commercial welfare.

Cooperation means team work, and team work means elimination of unnecessary expense, duplication and waste. Cooperation means organization of community thinking. In commerce and industry, it means the trade organization. The purpose of industrial cooperation is to bring about a meeting of minds among manufacturers, with full facts and clear cut principles definitely outlined, for the solution of those recognized problems which threaten the commonweal.

In modern industry the small producer is often as necessary a link in the chain as is the large producer. Since the chain is no stronger than its weakest link, the weak may cause the downfall of the strong. One competitor cannot long prosper unless the other competitor may also prosper. The large manufacturer cannot be fully efficient unless the smaller manufacturer is also efficient.

Trade Association Grounded on Principle

The trade association is not "a new idea." It is a fundamental principle and is the result of economic evolution. A trade association is a partnership of firms in industry or com-

Many a man who thought he had discovered perpetual motion foundered because he failed to realize that it is impossible for a human to create energy. There is a machine, however, which multiplies energy a hundredfold and a thousandfold and that is an association of individuals. Alone, man can accomplish very little, but let him organize with other men and his power increases, not double or treble, but a thousand times.

This is what a trade association does, it magnifies the potentialities of the individual business man to an extent which he is incapable of alone.

merce. This partnership embodies the democratic doctrine of the greatest good to the greatest number. In such an organization we must find the democratic ideal in business, if we are to find it at all.

Business Football of All Time Past

Business was the football of the nobility in ancient days. In modern days it has been the football of politics. Business for centuries was numerically in the minority. It was oppressed. When relief was found it sought the wrong kind of success and paid the price. Organizations of any sort have always paid, with their lives, for the perversion of sound and ethical principle to selfish interest, greed and aggression. Organizations of labor and agriculture can secure more attention than business. In a democracy, **votes count**, and the labor and farm people furnish the votes. They apparently can do things which would be wrong, ethically and legally, for business to do. Because they rebelled against this condition and made some bad mistakes, some business organizations have had a bad reputation. This reputation has been rendered worse by the conduct of unscrupulous men, by the sharpers and the thick skinned men, significantly called the barons of industry, who think of their own selfish immediate interests as more vital than ethics and civil law.

This Reputation Still With Us

Adam Smith said, in the year 1776, "People of the same trade hardly meet even for merriment or diversion but that the conversation ends in a conspiracy against the public or in some contrivance to raise prices." Thus trade associations at the time of our Declaration of Independence, had a bad name, because of the unethical conduct of the few and the perversion of the purpose of cooperation.

100 years or so later, Charles M. Schwab, when asked if there had been pooling agreements in industry before the trust came into being, replied, "Yes, in all lines of business, not only in steel, but in everything else. There are similar agreements, known as joint agreements to maintain prices. They have existed in all lines of business as long as I can remember." This statement was made by Mr. Schwab to Federal officers and can be found in the report of the Industrial Commission, 1919, Volume XIII, page 474.

This applies to those organizations which attempted to bring back the power of the Hanseatic League and the Guild without regard for the fact that in a democracy, as in an empire, ethical responsibility can never be laid aside. It goes hand in hand with power. This is a fundamental principle of civilization. History has proved, thru the centuries, that when ethical responsibility is submerged by morbid ambition and greed for power, the agency at fault eventually pays the price with its life, with widespread disaster and suffering.

Many Trade Associations

According to the National Industrial Conference Board, there are approximately 2,000 trade organizations, of one sort or another, in the United States. These are national, regional, state and district. They are in every state in the Union. They cover practically every industry and many subdivisions of some industries.

But their right to organize is restricted by law. A. J. Eddy, author of "The New Competition" says:—"At present the country is in the anomalous and highly unstable condition of being half free and half slave. Laborers are entirely free to combine; farmers are half free and half slave; manufacturers, merchants and dealers are all slave." However, I am personally of the opinion that the 2,000 trade organizations now existing in this country make a fairly good answer to that statement. Even if the kind of organization open to labor and to the farmer is closed to business there are forms

of organization open to business which are entirely legal as well as ethical. The only difference between them apparently is that the moral responsibility of business in its organization effort is more strictly and definitely interpreted by statute than is the case with the other two.

Industrial Problem Is Large

The problem of industry is perhaps the greatest problem of the age in which we live. What shall be the economic standard of human relationship:—

- Between individuals;
- Between partnerships of individuals and firms;
- Between organizations of firms and organizations of allied firms;
- Between the producer of the raw material and the producer of the finished product;
- Between the employer and the employee;
- Between the producer and the distributor;
- Between the producer and the public;
- Between the employee and the public;
- Between the producer, distributor and employee and the government?

Business announces what it wishes to do. Labor announces what it wants done. The government states what may be done. With the industrial problem facing all, the government, business and labor should combine their efforts and with singleness of intent, seek and find the solution which, with malice toward none and with charity for all, will embody the greatest good for the greatest number and the Golden Rule. It can be done. But it must be done on the basis of democracy. It must be done as a problem in economics and

(Continued on page 503.)



PROTESTS BRICK RATE REDUCTIONS

In the mileage brick rates ordered into effect by the Interstate Commerce Commission, rates on common brick were ordered not to exceed 80 per cent. of the corresponding rates maintained on articles named in the uniform brick list. The western carriers have protested against being required to put in the common brick rates. They consider that the commission made a mistake in directing its order at them. In its report, the Commission stated its order against those carriers would be confined to the ordering in of rates on articles in the uniform brick list (common brick was not in that list) and later on it stated it was impossible on the evidence presented to deal effectively with brick rates in western territory. The Commission has not stated whether its order was erroneous or whether it did not mean what it said in the body of the report concerning its intention not to deal with western brick rates.



PUBLISH FOREIGN COMMERCE HANDBOOK

An exceptionally usable Foreign Commerce Handbook has just been issued by the Foreign Commerce Department of the Chamber of Commerce of the United States.

Within the space of 31 pages this publication condenses a mine of information as to sources of service in foreign trade. Its alphabetical arrangement makes it a handy reference work for the busy exporter or importer. The book contains also a list of the topics of national importance that are engaging the attention of the National Chamber's Foreign Commerce Department Committee under the chairmanship of Willis H. Booth of New York.

Manufacturers of refractories and of chinaware and porcelain especially will be interested in this publication because of its information on exports and imports.

What Federal Trade Commission Does

How This Business Morals Regulator Functions —Practices That Have Been Condemned*

New York, Aug. 28, 1922.

Editor of PRINTERS' INK:

I haven't done nothin' that I know of—but every time I see a reference to the activities of the Federal Trade Commission I begin to wonder if maybe I am not next. It (the Commission, that is) appears to be breaking out in a new place all the time, and if this keeps up the American manufacturer will soon feel like a man on a tightrope over Niagara Falls.

Seriously, however, I am very much in the dark as to the actual functions of the Commission, and most business men of my acquaintance are equally uncertain on the subject. I think you would do a service to many of your readers by publishing some authoritative information on this point. The lawyers know, of course—but a business man as a rule doesn't care to hire an attorney every time he wants to blow his nose.

GEORGE W. HARRINGTON.

Mr. Harrington's uneasiness with respect to the Trade Commission's activities arises from the fact that the Commission is mainly operating in the field of business morals instead of dealing with specific offenses. Moral prospects cannot, as a rule, be expressed in absolutely definite terms, and the limits within which they are operative cannot be staked out precisely in advance. No one can imagine in advance all of the possible methods of unfair competition which human ingenuity may devise, and any attempt to establish a precise definition of unfair competition would merely constitute an invitation to discover methods which would be outside of the definition. The Federal Trade Commission, therefore, is charged with the general duty of preventing "unfair methods of competition," and it is left to the conscience of the individual business man to determine whether the methods he is pursuing are unfair or not.

To Suppress Unfair Methods of Competition

The Commission was created by an Act of Congress, approved September 26, 1914, and designed to supplement the existing anti-trust laws. The Act declares in general terms that "unfair methods of competition in commerce are hereby declared unlawful," and goes on to prescribe minutely the powers and duties of the Commission, the privileges of appeal to the Federal Courts, and so on. The Clayton Act, passed in October of the same year, also gave to the Commission specific power to enforce certain sections of that law, and it also was granted certain powers under the Trading With the Enemy Act, and the Webb-Pomerene Law, authorizing manufacturers to combine in seeking export trade. There are five commissioners, appointed by the president for a term of seven years.

It should be noted that the Commission is not empowered to restrain "unfair competition," but to prevent unfair *methods* of competition. It has no authority to punish, nor to impose damages; thus its orders can only be enforced by an appeal to the courts. The limit of its power is the issuance of a formal order to cease and desist from certain specific practices, which if not obeyed, must be appealed by the Commission to a Federal Court in order to secure enforcement. Any person against whom an order is issued also has the right to appeal to the Circuit Court, which is empowered to enforce, set aside or modify orders of the Commission.

Any individual can start the machinery in motion merely by writing a letter in which specific charges are made against some other individual or corporation. If this letter appears to constitute a clear case of unfair methods of competition in interstate commerce it is docketed as an application for complaint, and turned over to an examiner for investigation. Following this, it goes before a board of review, consisting of two lawyers and one economist, which makes a recom-

mendation as to whether or not a formal complaint should be issued. The case is then studied by one of the commissioners to whom it has been assigned, and who makes his recommendations to the full Commission. After a discussion, a vote is taken to determine whether or not a formal complaint will be issued. In order to result in a formal complaint, it must be clear: (1), that the case involves interstate commerce; (2), that the methods reported are actually unfair; (3), that there is actual competition between the parties, and (4), that the case is of sufficient importance as to concern the public interest.

When a formal complaint is issued, the proceeding becomes a public record, the respondent is given an opportunity to file an answer in writing, after which the case comes up for trial. If the respondent does not believe that the findings of the Commission are justified, he has the right to appeal to the United States Circuit Court of Appeals.

Practices Which Have Been Condemned

The practices which have already been condemned by the Federal Trade Commission as representing unfair methods of competition are listed in the "Congressional Directory" as follows:

Misbranding of fabrics or other commodities respecting the materials or ingredients of which they are composed, their quality, origin or source. Adulteration of commodities, misrepresenting them as pure, or selling them under such names and circumstances that the purchaser would be misled into believing them pure.

Bribery of buyers or other employees of customers and prospective customers to secure new customers or induce continuation of patronage. The payment of bonuses by manufacturers to salesmen of jobbers and retailers to secure their special services in selling their goods, and making unduly large contributions of money to associations of customers.

Procuring breach of competitors' contracts for the sale of products by misrepresentation or other means.

Procuring the business or trade secrets of competitors by espionage, by bribing their employees, or by similar means.

Inducing employees of competitors to violate their contracts or enticing away employees of competitors in such numbers or under such circumstances as to hamper or embarrass them in business.

Making false or disparaging statements concerning competitors' products, their business, financial credit, etc.

The use of false or misleading advertisements.

Making vague and indefinite threats of patent infringement suits against the trade generally, the threats being couched in such general language as not to convey a clear idea of the rights alleged to be infringed, but nevertheless causing uneasiness and fear in the trade.

Widespread threats to the trade of suits for patent infringement arising from the sale of alleged infringing products of competitors, such threats not being made in good faith but for the purpose of intimidating the trade.

False claims to patents, or misrepresenting the scope of patents.

Intimidation for the purpose of accomplishing enforced dealing by falsely charging disloyalty to the Government.

Tampering with and misadjusting the machines sold by competitors for the purpose of discrediting them with purchasers.

Trade boycotts or combinations of traders to prevent certain wholesale or retail dealers or certain classes of such dealers from procuring goods.

Passing off products or business of one manufacturer for those of another by imitation of products, dress of goods, or by simulation of advertising or of corporate or trade names.

Unauthorized appropriation of the results of a competitor's ingenuity, labor and expense, thereby avoiding costs otherwise necessarily involved in production.

Preventing competitors from procuring advertising space in newspapers or periodicals by misrepresenting their standing or other misrepresentation calculated to prejudice advertising mediums against them.

Misrepresentation in the sale of stock of corporations.

Selling rebuilt machines of various descriptions, rebuilt automobile tires, and old motion-picture films slightly changed as and for new products.

Harassing competitors by fake requests for estimates on bills of goods, for catalogues, etc.

Giving away of goods in large quantities to hamper and embarrass small competitors, and selling goods at cost to accomplish the same purpose.

Sales of goods at cost, coupled with statements misleading the public into the belief that they are sold at a profit.

Bidding up the prices of raw materials to a point where the business is unprofitable for the purpose of driving out financially weaker competitors.

Loaning, selling at cost, or leasing for a nominal consideration pump and tank outfits to dealers on condition that they be used only for the distribution of the products of the particular manufacturer. Loans and leases of other equipment under similar conditions.

The use by monopolistic concerns of concealed subsidiaries for carrying on their business, such concerns being held out as not connected with the controlling company.

Intentional appropriation or converting to one's own use of raw materials of competitors by diverting shipments.

*Reprinted from the September 7, 1922, issue of Printers Ink.

Giving or offering to give premiums of unequal value, the particular premiums received to be determined by lot or chance, thus in effect setting up a lottery.

Any and all schemes for compelling wholesalers and retailers to maintain resale prices on products fixed by the manufacturer.

Combinations of competitors to enhance prices, maintain prices, bring about substantial uniformity in prices, or to divide territory or business.

The Commission also has authority, under Section 6 of the Trade Commission Act, to make economic investigations; to gather and compile information concerning the organization, business, conduct, practices and management of any corporation engaged in interstate commerce except banks and common carriers. It has further investigatory powers in connection with violation of the anti-trust laws, and the manner in which decrees of the courts are being carried out. The Commission is also entrusted with jurisdiction over violations of those actions of the Clayton Act which refer to price discriminations, tying contracts, "holding companies" and interlocking directorates. Its functions under the Trading With the Enemy Act and the Webb-Pomerene law do not concern the present discussion.—Ed. PRINTERS' INK.

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BRICK HOLLOW WALL 82 YEARS OLD

Shortly after the announcing of the Ideal wall in January, 1921, word was received from Sweden that this type of construction was not new, but houses built with Ideal walls had stood for 140 years in even the severe climatic conditions encountered in Sweden. Sweden is a long way off, however, and there were many skeptics who still doubted the value of the Ideal wall and the truth of the claims made for it by its advocates. For these "Doubting Thomases" we have to relate an interesting item which will shatter their faith in their own judgment and make them converts to the Ideal wall.

Wm. Baxter, of Cleveland, recently purchased a house in one of the suburbs of that city and began remodelling it. During the remodelling, representatives of the Cleveland Builders Supply and Brick Co. made the discovery that the house was built of hollow walls similar to the Ideal wall. The walls were constructed in two sections, one inch apart and tied at intervals with headers at every fifth course.

This house was built 82 years ago and today stands as indisputable proof of the truth of the claims made for the Ideal wall. As the illustrations show, plaster was applied directly to the brick, the air space in the wall forming an entirely adequate barrier against the moisture. A detailed examination of the house failed to disclose any discoloration, dampness, peeling or other indication of moisture. The brick used in the construction were hand made commons both in the exterior and interior sections. The interior partitions of the house were constructed in the same manner as the exterior walls, of hand made common brick.

Now, if 82 years of cold, rain, snow, heat and the rigors of climate failed to penetrate the one inch of air space in the walls of this old house, it is safe to say that the modern Ideal wall with its four inches of air space will at least equal this performance.

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MODEL HOME TO ADVERTISE BRICK

Face brick furnished by the American Face Brick Association and common brick supplied by the Common Brick Manufacturers' Association will be used in the construction of a house being built at Glen Ellyn, Ill. It will be a model home constructed in the interests of the "Own your Home" and "Better Homes" movements. Moving pictures will be made of the home by the Atlas Educational Film Co., during the various stages of construction and will be woven into a scenario. The completed film will be exhibited thruout the country. The proposition is being financed to a large degree by the various manufacturers whose products are used in the construction of the model home.

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PROCLAIMS OCTOBER 9 FIRE PREVENTION DAY

By proclamation of President Harding October 9 has been designated as fire prevention day. The annual fire losses of this country exceed by a great margin those of any other country and everyone is urged to observe the week of October 2 to 9 as fire prevention week. The President in his proclamation said:



A Brick Hollow Wall House Which Has Stood 82 Years. The View on the Left Shows an Exterior Wall. The Wall Shown on the Right Is an Interior Partition Wall.

"It has long been a reproach to our country that by reason of poor construction, inadequate facilities for fire prevention and an all too general carelessness about possible causes of conflagration, our fire waste reaches figures year after year which are not approached in any other country in the world. Mindful of the fire waste which is expressed in figures so huge as to be appalling, it may be emphasized that in a time, when all communities need to conserve resources and to promote production in every possible way, there ought to be especial effort to minimize such losses."



RESEARCH TESTS ON 8 KILNS COMPLETED

Research investigations being conducted by the four clay products associations under the supervision of R. T. Stull, supervising ceramist of the U. S. Bureau of Mines, is progressing nicely. Tests have been completed on eight kilns, namely: two common brick, two paving brick, two face brick, and two hollow tile kilns. In nearly all instances, substantial savings in time and fuel have been made, from 1 to 50 per cent. time in burning, and from 10 to 38 per cent. in fuel.

Some of the problems attacked by the Bureau of Mines are as follows: Cause and prevention of red core in brick; cause and effect of so-called "blue smoke;" removal of sulphur fumes from kiln gases in order that they may be used in dryers; cause of slabbing or popping in clays high in siderite;

cause of kiln glazing on shale brick (pavers) when certain coals are used; relation between porosity and rattler tests and effect of lamination on both; why some clays swell long before zero porosity is obtained; and cause of bloating of ceramic ware.



SPORT OF KINGS LURES TO LOUISVILLE

The Clay Products Association held its regular monthly meeting in Louisville, Ky., at the Watterson Hotel, on September 5, there being a morning session that day, with a dinner at noontime, and the meeting abandoned for the race track. A number of the visitors came in on Monday, but trains were delayed, and there were not enough present for a meeting that day. However, the brick men were here for three days, that is the ones that came early and left late, and they took in some very good racing, and incidentally some very hot weather.



MONOGRAPH ON BUREAU OF MINES

"The Bureau of Mines, Its History, Activities and Organization," is the title of a book just issued by the Institute for Government Research. The book is by Fred Wilbur Powell and is a complete history of the activities and organization of the Bureau of Mines. This book is one of a series of monographs, which give a detailed description of each of the 50 or more distinct services of the government.



Refractories Men Adopt Principles of Factory Labor Costs

PRINCIPLES of factory labor costs were adopted by the Refractories Accountants' Institute at Washington, April 24 and 25. The method of apportioning labor costs as given in this schedule will hereafter be complied with by members of the Institute. The schedule is reprinted herewith.

1. The two general divisions of Factory Labor Costs shall be

- a. Direct
- b. Indirect.

2. Repair Labor shall be kept as a separate subheading of Indirect Labor in respect that it is important for

- a. Analysis of Costs
- b. Income Tax Schedules
- c. General Statistical Data

This Labor shall be classified in accordance with the different processes of manufacture and the same base figures shall be used to compute the costs as are used in the corresponding processes of manufacture.

How "Direct Labor" Is Distributed

3. The basis of distribution of Direct Labor shall be the different stages of manufacture, this generally being the present practice in the industry. The extent of such distribution will depend entirely upon the requirements of the individual.

4. Distributions shall be clearly defined, wherever possible, between processes of manufacture of hand and machine material made in the same plant, keeping in mind that one of the essentials in Cost Accounting is clarity in the presentation of facts.

5. The grinding and screening of clay for sale as "Ground" or "Dry-milled" clay may be included in the general grinding expenses and proper cognizance taken of it so that it is not included in the cost of brick making. It is agreed, however, that much the better method is the treatment of the expense of this material in a separate and distinct manner from similar operations for clay used in the manufacture of other products.

Finished Product Not Used as Base

6. Where costs per thousand are determined it is agreed that the various subheadings of Direct Labor shall be based on the amount of material used in the process affecting the expense; on no consideration shall the finished product be used as a base except to compute the cost of ware "drawn" or emptied from the kilns.

7. The three basic figures to be used, where costs per thousand are computed, shall be

- a. Material made
- b. Material set in kilns
- c. Material "drawn" or emptied from kilns.

Breakage shall be kept as a separate item of expense so that one process or department of manufacture shall not be burdened with breakage occurring in some other process or department. The adoption of standards on all labor expenditures is recommended on account of their value for comparative purposes in controlling plant efficiencies, and for eliminating waste.

Definition of Miscellaneous Labor

8. Miscellaneous Labor shall consist of all labor not definitely associated with some specific operation. This expense subheading, however, should be resorted to as little as possible.

9. The wages of all

- a. Superintendents and Foremen
- b. Factory office clerk and Timekeepers

shall be included in the plant costs under the headings of "Supervision and Plant Clerical."



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FINE CERAMIC MANUFACTURE



A Department Devoted to Practical Problems in the Manufacture of Higher Grade Ceramic Products Such as Whiteware, Including Electrical Porcelain, Floor and Wall Tile, Sanitary Ware, etc., as Well as Stoneware, Terra Cotta, Special Refractories and Other Articles Where High Grade Clays Are Employed in Their Fabrication.

WHITE CLAY MINING AT LANGLEY

METHODS OF MINING and preparing white clays for market in the vicinity of Langley, South Carolina, are described below. This district was visited in January, 1921, by W. M. Weigel, the writer, and R. B. Ladoo, mineral technologists of the Bureau of Mines.

The clay or kaolin deposits occur entirely as lenses or restricted areas, lying almost horizontal, at depths varying from a few feet up to depths too great for stripping, exceeding 75 feet. The horizontal area varies from one to ten or more acres. The lenses are often near together so that the pit or excavation from one is sometimes extended and carried into an adjacent bed of clay. The cover consists of red and yellow beds of sand, mixed with clay, pebbles, and loam. In places, beds of this cover two to five feet thick are indurated and hard enough to require light blasting before stripping. Generally, however, the stripping is easily accomplished by mechanical excavators. The surface of the clay is at times rolling, so that the last part of the stripping is usually done by hand.

Prospecting and Mining the Clay

Prospecting for new deposits and defining limits of deposits already opened up is done by boring. One company puts down a hole by means of a one-inch hydraulic jet, using no casing until the clay is reached. The jet is then withdrawn, the hole cased, and the clay sampled thru the casing with an auger for quality and thickness. Samples can be obtained rapidly in this way, and removed uncontaminated with sand. Where the cover is only a few feet thick, test pits may be sunk, but rarely elsewhere.

After the clay bed has been defined, stripping operations begin. If the cover is only a few feet thick, it is removed by teams and scrapers. All mines near Langley now use mechanical excavators, mostly of the cableway type.

The hoisting engine and boiler, or motor-driven hoist, are mounted on a substantial carriage with a track gage of 20 to 24 feet, the direction and location of the track being along one side of the area to be stripped. The hoist is equipped with three drums for the track cable, haulage rope, and dumping rope, respectively.

Stripping Operations

On the opposite side of the area to be stripped and the width of the spoil bank from it, a mast is erected and well guyed. The track cable extends from the top of the mast to the hoist, passing over sheaves on an A frame which is part of the hoisting car. From this cable, a scraper bucket is suspended by a trolley. The scraper is lowered to the ground by slackening the track cable, and is filled

by being dragged forward with the haulage rope. Then the track cable is tightened, raising the filled scraper, which is conveyed toward the mast by the haulage rope or tail rope, as the case may be. At the proper point, the dumping rope is tightened, lifting the back of the scraper and discharging the load on the spoil bank.

At one plant, instead of a dumping rope, a button rope was employed that tripped the scraper. At another, instead of a single track cable, a pair of track cables was employed, the trolley then consisting of a 4-wheeled truck. Tension in the two cables was maintained constant by a compensating device at the mast. This type gives better control, and prevents to some extent side movements of the scraper, especially when digging along the side of the excavation. The scrapers are $1\frac{1}{4}$ yard capacity, and require a 90 horsepower motor to operate if electrically driven.

Excavating Costs 10 Cents Per Yard

Three men are required to operate the excavator, two at the hoist and one in the pit. One company stated that the operating cost for the excavator was six cents per cubic yard, and the total cost, including overhead, depreciation, and so forth, ten cents per cubic yard.

When the clay is reached, the hoist and mast are moved ahead a few feet, and another slice of cover is removed from the clay. The last few inches of cover is removed by hand, and shoveled over to a place where the excavator can pick it up, or loaded into carts and hauled back to the area from which the clay was being mined. About one-half inch of the top clay is scraped off to free the clay from sand and discolored matter.

The stripping operation is the most difficult problem confronting operators. Often the spoil heap must be placed on an area underlaid with good clay, resulting in a second removal of the heap or the abandonment of that part of the bed. The work should be so laid out that the spoil heaps are placed if possible on barren areas. Loading the clay into cars and hauling it to areas not to be mined is impracticable at most pits because of the excessive cost.

Strip 60 Feet in Places

At one plant visited, where stripping was in progress, the overburden from a new stripping was being back-filled into the excavation from which the clay had been mined. After development has progressed sufficiently, this plan may offer a solution of the difficulty. The clay as mined is 12 to 25 feet thick. To strip three feet of overburden for one foot of clay is considered practicable; 60 feet was the deepest stripping observed. An attempt is made to keep stripping operations ahead of the face mined in order that the overburden and deposits from rains do not contaminate the clay.

Mining is done by hand with picks, and the clay is loaded by hand into 1 or 2 ton cars. In blasting, which is seldom resorted to, a low grade of dynamite is used. At most pits selective mining is employed as the bed is usually not of uniform quality, varying in the quantity of grit and in color. The grades of clay often vary from top to bottom with the thickness of the bed. At one pit, however, different parts of the area yielded clay having different quantities of grit.

General Characteristics of the Clays

The clays mined in the Langley district are sedimentary kaolins with few impurities. The prevailing color is white; at times the color is smoky grey or pink, and occasionally strong pink to lavender. The lighter colors usually become white on exposure to the air and on drying. The lower parts of the beds are usually the whitest. These kaolins are fine grained in texture, and have good plasticity; their tensile strength is from 8 to 36 pounds. They generally slake readily. Their specific gravity is from 2.50 to 2.25.

The following table gives the range in analysis from three samples taken in part from survey reports and in part supplied by one of the operators:

Silica	44.00 to 44.66
Alumina	37.90 to 40.25
Ferric oxide	1.43 to 2.53
Titanic oxide	1.25 to 1.50
Lime	0.08 to 0.28
Magnesia	Trace Trace
Alkalies	0.40 to 0.77
Ignition	12.14 to 13.17

The following rational analysis of two samples was made by Mr. Sloan of the South Carolina Geological Survey:

Clay substance	99.29 to 99.60
Quartz .....	.49 to .16
Feldspar .....	.47 to .64

The clays in the district are well adapted for use in paper stock, for which they are mainly used, and in pottery and china ware, without washing.

Milling and Preparation for Market

Operations of three representative plants are here described in order, to show milling practice. The South Carolina Clay Co. is about 2½ miles southeast of Langley, S. C. At this mine the cars of clay from the pit are hauled by gasoline locomotive over a 100-ton V-bottom bin and dumped. The bottom of the bin has a slot about 12 inches wide running its full length, covered with removable boards. Under this slot is a chain scraper conveyor, the return flight of which passes over the top of the bin.

The conveyor delivers the lumps of clay to a crusher consisting of a steel cylinder about 18 inches in diameter by 20 inches face, with six ⅝ by 1¼ inch steel bars riveted on the face. This machine rotates at 180 revolutions per minute in a wooden steel-lined box, the bars being about one inch from the end of the box. The clay lumps are thus shredded.

A scraper conveyor delivers this material to a second crusher which runs faster than the first. A small bucket elevator and a screw conveyor deliver the clay to a 5 by 25 foot coal-fired indirect-heat dryer, running 5 to 6 revolutions per minute.

A chain-belt elevator delivers the dried clay to a 5-ton bin, whence it passes to a 4-roller high-side mill having a 7-foot air separator equipped with an inside cone to collect and return the coarse particles to the mill.

Pound of Coal to Evaporate 1½ Pounds Water

The fan that draws the clay from the mill delivers it thru a cyclone collector to a 10-ton bin, from which it is bagged by a two-bag Bates packer in paper bags holding 60 pounds of ground clay. The excess air from the system escapes thru 2,000 square feet of filtering surface in muslin bags. The dust from the bags collects in a hopper beneath them, and is bagged by hand.

The plant has an hourly capacity of three tons of finished clay. The clay as it comes to the mill contains about 15 per cent. moisture. Three tons of coal per ten hours—for 30 tons of clay—are burned in the dryer. This quantity is equivalent to one pound of coal to 1.5 pounds of water evaporated. Obviously the clay is difficult to dry; an equal

amount of water in granular material, such as concentrates of some metallic sulphides, evaporates much more easily.

Six men are required to operate the plant. The bagged clay is loaded on narrow gage cars and hauled two miles by gasoline locomotive to the main line of the Southern Railway. For some customers the clay is not ground, the roller mill and bagger being by-passed, and the crushed dried clay bagged by hand in burlap bags.

* * *

MODELLERS JOBS GO BEGGING AT BIG PAY

\$16 a day looks like temptation, but the offer of \$16 has not secured enough modellers for the Tropico Potteries, located just south of Glendale, Cal. F. M. Davis, general manager, states:—"All of our modellers are artists and have had a long training. There are not many of them in this country. We have sent as far east as Chicago and as far north as Seattle. Of course we have secured some men, but we haven't been able to get as many as we could use. I recently made a trip to Detroit especially to employ modellers, but was unable to get a single one. We pay \$15 or \$16 for eight hours work. This is more than the regular union scale."

Mr. Davis further remarks that it is to be noticed that many of the modellers in this country secured their training in Germany under the apprentice system. Too many of the young high school graduates want to get into an architect's office where but one in 20 has the prospect of becoming independent architects, rather than enter the modelling field, which offers much better pay. And most of the art school graduates want to do high brow work and turn up their noses at commercial work, so that terra cotta modellers are hard to get.

* * *

ANNOUNCE FIRST GENERALWARE STRIKE IN DECADE

When the present wage agreement between the United States Potters' Association and the National Brotherhood of Operative Potters terminates as of October 1, the first general strike in the industry in over a decade will begin. This is inevitable.

The manufacturers are firm in their stand that no increase in wages can be granted at this time, and the employes have gone on record as favoring the stand of their committee engaged in a recent wage conference at Cleveland, Ohio, that wages be increased seven per cent., or the wage which prevailed between August and November last year, and prior to a reduction which became operative last November.

There are approximately 50 generalware pottery plants affiliated with the United States Potters' Association, employing upward of 7,000 people. These plants are scattered from Trenton, N. J., to Burbank, a suburb of Los Angeles, Cal., east to west, and from Mt. Clemens, Mich., to Erwin, Tenn., from north to south.

That the majority of the members of the pottery workers organization did not exercise their right of vote at the referendum election, is shown by the result of the canvass. According to the constitution of the National Brotherhood of Operative Potters, a two-thirds majority vote is required before a strike can be officially inaugurated. Claiming a membership of approximately 7,000, the referendum vote showed 2,731 favoring a strike, 1,038 against such a move, or a majority over the required two-thirds of 218. Those voting in favor of a strike represent only 39 per cent. of the accredited membership.

Quoting from the annual financial statement of the Brotherhood, the organization has a "defense" fund in the hands of the secretary-treasurer as of April 30 last of \$677,204.82. There was also due this fund from unemployment fund, as of the same date, \$98,894.70. There was added to this

"defense" fund during the fiscal year ending April 30 last, \$100,535.76, according to the financial statement.

Lengthy continuance of a strike in the dinnerware plants of the country will cause heavy losses to department stores, jobbers and other distributing agencies. Mail order concerns will also be rather hard hit because of the inability to obtain whiteware, to say nothing of dinner sets and open stock dinnerware patterns.

For many weeks, department store buyers have been visiting the generalware markets anticipating fall and holiday requirements. Unless there is an early adjustment of the situation, these goods will not be delivered, as manufacturers will make no effort whatever to operate plants. There is considerable business now on file with the different dinnerware manufacturers for October and November shipping, and in some instances December and January specifications are now being received.

When the wages of pottery workers suffered a decline last year, this reduction was reflected immediately in the selling list, and since then no effort has been made to change the list upward. Any advance in wages will of necessity cause a similar increase in the selling list, but manufacturers point out that any such move would be looked upon by the buyers with considerable disfavor.

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SANITARY WORKERS WILL STRIKE ALSO

The sanitary branch of the industry is not concerned in the issues now occupying the attention of the generalware industry. However, at Atlantic City a fortnight ago wage agreement failed between the sanitary pottery manufacturers and the conference committee of the Brotherhood.

Anticipating just such a situation within its ranks as now prevail, there is a clause in the constitution of the Brotherhood which provides that in the event of a general strike, eight local unions can petition a referendum vote to return to work. It may follow that ere the strike is one day old that such a petition will be filed with the executive officers at East Liverpool and the situation clarified. However, no official statement of such intent has been issued by the officers of the organization.

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UHL POTTERY MAY CLOSE

Unless coal mines in the vicinity of Evansville are able to supply the Huntingburg, Ind., plant of the Uhl Pottery Co., the factory will have to close down within a few days, Charles Uhl, secretary-treasurer of the company said. West Virginia mines, which are under contract to supply coal to the Uhl potteries are unable to provide fuel.

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BUILDING NEW DECORATING KILNS

When a two-story addition being built at the plant of the W. S. George Pottery Co., at East Palestine, Ohio, is finished, the second floor will be devoted exclusively to general offices and for sample room purposes, while the first floor will permit the enlargement of the decorating department. Two additional decorating kilns are being built at this plant, while similar additions are being made by this company to their plants located at Kittanning and Cannonsburg, Pa.

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TREISCHEL TRANSFERRED TO MASSACHUSETTS

C. C. Treischel, secretary of the White Wares Division of the American Ceramic Society, has been transferred to the Pittsfield, Mass., plant of the General Electric Co. He was formerly with the General Electric Co.'s plant at Schenectady, N. Y., in the capacity of ceramic engineer in the insulations department. His new address will be Pittsfield Porcelain Works, General Electric Co.

PREPARED FOR POTTERY EXHIBIT

In order that a favorable location might be obtained, the Jackson China Co., of Falls Creek, Pa., has already been assigned suites in the Congress Hotel, Chicago, Ill., where the 1923 pottery exhibit will be arranged next February.

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FORM FLOOR AND WALL TILE COMPANY

The M. E. Folsom Floor & Wall Tile Co., Union Hill, N. J., has been organized with a capital of \$10,000 to manufacture ceramic tile products. The incorporators are M. E. Folsom, Frederick Brunning, Jr., and William Hinderks, 509 Gardner Street, Union Hill, N. J.

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\$25,000 LOSS IN POTTERY FIRE

The three-story brick building of the Willden Pottery Co., 711-15 Wharton Street, Philadelphia, was burned down August 24, with damage estimated at \$25,000. Hundreds of dollars worth of flower pots were damaged. The straw in which these were packed caused the flames to spread so rapidly that it was impossible to save the building, and firemen directed their efforts to save adjoining property.

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GARAGE TO BECOME POTTERY

The Ontario Pottery Co., Ltd., has purchased the garage of J. M. and O. Reid, 173 King St. West, Oshawa, Ont., and will renovate it for the manufacture of pottery. This property consists of 3½ acres on which is a solid brick building of 125 feet frontage.

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A one-story addition, 50x166 feet, will be erected by the Trent Tile Co., Trenton, N. J.

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The Florentine Pottery Co. of Cambridge, Ohio, has filed a petition in bankruptcy.

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WEDGWOOD STARTED WITH \$100

The secret of making the famous jasper ware passed with its creator, Josiah Wedgwood, when he died. The great English ceramic artist compounded this ware in a secret laboratory beneath his study. He started his career in 1752 with \$100 capital, and founded the great works at Etruria, which became one of Europe's art centers. His pottery is greatly valued by collectors of today.

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SHUTS DOWN TWO MONTHS—NO COAL

Lack of coal, which has been the bugbear of practically all clay plants, forced the Southern Potteries to close down for almost two months, during the time of the shortage. Shipments of coal are being received with some regularity and operations have begun once more.

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EMPLOYES REJECT DISCHARGES

Some interesting sidelights on the general ware pottery strike are coming to light. Employees of the Standard Sanitary Manufacturing Co. at Tiffin, Ohio, have refused to be discharged by the company. Workers who were discharged declined to take their tools away saying they were only on strike and could not be discharged until after the expiration of the wage agreement October 21.

Spend Millions for Plant Betterment

What a Few of Hundreds of Clay Plants Are Doing in the Way of Installing Systems That Will Improve Their Production Methods, Is Mentioned Briefly Here

Clay plants at this time are spending large sums in a vigorous effort to lower costs and to find a remedy for the deplorable labor situation. It is this unusual zeal that has inspired the recent editorials and the campaign for plant betterment inaugurated by Brick and Clay Record. Moreover, it has enabled this campaign to be based on practical ideas evolved by practical men in an effort to solve their problems of plant improvement.

PUTTING IN DRYER AND BRICK MACHINES

The Eastern Brick Co., with main office at East Berlin, Conn., and operating the R. O. Clarke & Son Brick Co., C. P. Merwin Brick Co. and the Aetna Brick Co., is experiencing good business for all of its units. The R. O. Clarke & Son unit is at the present time improving its plant with new equipment, including artificial dryers and Autobrik machines.

WILL CUT STRIPPING COST 90 PER CENT.

The Adel (Ia.) Clay Products Co. is installing a new method of removing overburden. They have practically built a suspension bridge about 300 feet long from the point of take-off to the tower. This bridge is composed of two wire cables 1½ inch in diameter, and a track they built thereon. The stripping is dug by a shovel and loaded into a nine-ton car. The car is propelled onto this bridge, and the overburden dumped. They expect eventually to have a fill 75 feet high. The stripping was formerly done by teams at 30 cents per yard, and the new arrangement will enable them to do it for three cents per yard.

INSTALLING 2 MOTORS, OTHER EQUIPMENT

The Auburn Shale Brick Co. is rapidly getting the Gettysburg, Pa. plant in order preparatory to manufacturing face brick.

To take care of the power requirements one 200 horsepower d. c. motor is being installed, together with control boxes, transformers, and so forth. This installation will serve for driving the machinery units. A 25 horsepower motor is being installed for the waste heat fan drive, and motors for grinding units, elevators, and so forth, will be installed about January 1.

Other improvements made include a new Freese auger machine, automatic cutter and 16-foot pug-mill. A new storage shed and machine shop have been provided for, and changes in the dryer construction made. This plant, which has been idle a long time, is now just starting operations, and will continue thruout the winter.

SHAW KILN IS PHENOMENAL SUCCESS

The General Ceramics Co. is experiencing phenomenal success with its new Shaw gas continuous kiln, which was recently completed and now under operation. Automatic stokers which throw coal over the fire bed by means of springs have recently been installed in the boiler room.

Considerable improvement is contemplated for this plant, including an extension of factory buildings for increased capacity, and new Proctor dryers and auxiliary equipment.

HAULAGE SYSTEM CUTS LABOR 60 PER CENT.

The Vincent Clay Products Co. of Fort Dodge, Ia., is installing a new type of endless rope haulage from the shale planer to the factory that will have a capacity of 25 tons per hour. This installation will reduce the number of men required from five to two, one at the planer and one at the hoist.

BUYS 80-INCH BLOWER TO COOL KILNS

Springfield (Ill.) Paving Brick Co. recently installed an 80-inch blower to be operated by electric motor, both being mounted on a cast. The blower will be taken from kiln to kiln, and used to expedite the cooling of the contents. They have also purchased a new pyrometer system of the potentiometer type, which is said to give unusual accuracy in reading temperatures.

INSURES HIGHEST QUALITY FIRE BRICK

Chicago Retort & Fire Brick Co. of Ottawa, Ill., is rearranging one of its machine rooms for the manufacture of high grade fire brick. They are installing three bins, one for ground bats, one for flint clay, and one for plastic clay. They are placing one disc feeder under each bin so that the three materials can be mixed in exact proportions, and the brick will always be uniform.

BUYS TRUCKS AND TRAILERS TO HAUL

The Duffney Brick Co. of Mechanicsville, N. Y., recently purchased two Mack trucks and about six Miami trailers for hauling brick from the factory to the barges on the Hudson River. The Duffney Brick Co. have devised a unique method for loading brick onto barges, despite their handicap in being quite a distance from the wharves. This company had shipped from its three plants 27,000,000 brick up to the latter part of August.

HOLDS RECORD FOR SOFT MUD PRODUCTION

The Jova Brick Co., Roseton, N. Y., is the first plant on the Hudson to have installed an Autobrik machine. It now has two machines, one an eight mold and the other a nine mold. The nine mold machine has been turning out 22 molds per minute, or 83,000 brick per day, and the eight mold machine has been making about 74,000 brick daily. During the month of August, 4,000,000 brick were made on these two machines, which is a world's record for soft mud brick production on only two machines.

The Jova Brick Co. recently installed two Minster locomotives, 16 Easton cars, a Thew gas shovel, Williams pulverizer and other miscellaneous equipment to better plant conditions.

TO START WORK SOON ON NEW PLANT

W. C. Craig, Brownsville, Tex., is perfecting plans for the establishment of a new brick manufacturing plant at Robstown, Tex. A site for the yard has been acquired and work will be placed under way at an early date.

INCREASING REFRACTORIES OUTPUT

The Carborundum Co., who operates the old Didier-March plant at Keasbey, N. J., has increased the length of its tunnel kilns and is remodeling the periodic kilns in order to increase the production of special refractories. A good demand is experienced for this product.



PURCHASE NEW CRUSHER EQUIPMENT

The new crusher plant to be installed at the Buffalo (Kan.) Brick Co. has been shipped, and it is expected to have it in operation in the near future. This company has just put in a new cable to haul the cars from the shale pit. Brick shipments are tied up for the present on account of an embargo.



GLONINGER TO BUILD NEW KILNS

Down at Vanport, Pa., the Gloninger Brick Co. is planning to build new kilns which will add to its capacity. This plant was destroyed by fire last year and has since then been rebuilt and made modern in every department. The company now has a plant which ranks as a highly modern institution.



CHAMPLAIN BUILDING NEW PLANT

The Champlain Brick Co. of Mechanicsville, N. Y., is making considerable progress on its new plant located on the opposite side of the river from its present location. It is building an entirely new plant with artificial dryers, and will probably be ready to turn out brick for the beginning of next season.



INDIANA COMPANY TO BUILD KILNS

Several kilns will be added to the plant of the Kalamazoo Tank & Silo Co., at Carbon Cliff, Ind. The Carbon Cliff plant was purchased by the Kalamazoo company some time ago and since then the plant has undergone a considerable change for the better. A large amount of money has been expended to make the plant modern and up-to-date.



TO BUILD MODERN STIFF MUD PLANT

The New York Brick Co., Mechanicsville, N. Y., have the only stiff mud brick plant on the Hudson River. At the present time it is a small plant, but they contemplate building an entirely new factory along the east bank of the Hudson River. A modern factory manufacturing brick according to the stiff mud process are the plans of the men owning this concern.



MAKE FIRE BRICK ON AUTOBRIK MACHINE

M. D. Valentine & Bro. at Woodbridge, N. J., are operating their Autobrik machine which they recently installed for manufacturing fire brick by the soft mud process. They also recently installed a rotary magnetic precision surface grinder for trueing up mold liners.



LIGHTED SIGNS ADVERTISE NATCO

The National Fire Proofing Co. has three plants within a half mile of each other along the banks of the Raritan River near Perth Amboy, N. J. The company recently illuminated its three large Natco signs, and these signs can be seen at a considerable distance, and are favorably located with respect to the bridge crossing the Raritan River. Business is good at these plants, and changes in equipment and additional kiln volume have been made in order to meet the demands.

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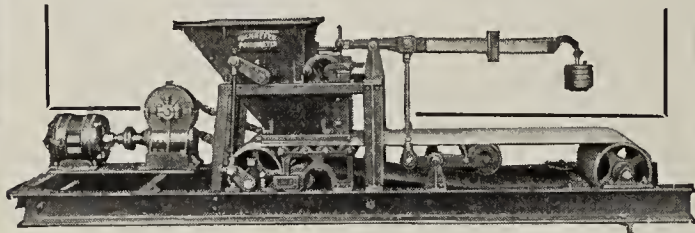
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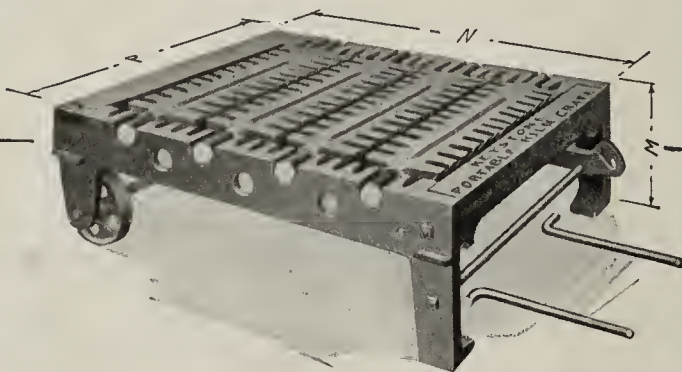
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INSTALL DRYER AND SOFT MUD MACHINE

The Roseton (N. Y.) Brick Corporation recently installed a nine-mold Autobrik machine and artificial dryer, which is supplanting the small soft mud brick plants on the yard. This is a plant of large capacity, and it is estimated that the installation of this new equipment will pay for itself in one year. Coal delivery trucks were recently purchased for facilitating the distribution of coal to the various soft mud brick machines.

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107 YEARS, FROM HAND MOLD TO AUTOMATIC MACHINE

On the present site of the De Noyelles brick yard at Haverstraw, N. Y., was located perhaps the very first Hudson River brick yard. This was started, it is said, in 1815, by James Wood, who leased land from the great grandfather of Frank De Noyelles, the president of the De Noyelles Brick Co.

50 years ago the clay was tempered by a wheel operated by oxen, and the brick hand molded. At the present time on this site there are 14 brick machines operated by the De Noyelles Co., and the clay is obtained during the fall months from the bottom of the Hudson River, from which it is won by means of dredges. It is then stored along a trestle and redug by a Thew shovel, according to requirements, thruout the operating season. Frank De Noyelles, besides operating this plant, is a director in one of the local banks, an active civic leader, and has a beautiful home in the most advantageous point alongside a mountain overlooking the Hudson.

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COAL FROM CARS TO KILN FOR SIX CENTS

The Purington Paving Brick Co. at Galesburg, Ill., has purchased two new clamshells for unloading coal. These are to replace two other clamshells which were formerly used for the same purpose. This system has been so successful that they can deliver their coal to their kilns for six cents per ton.

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CENTRIFUGAL PUMP KEEPS PIT DRY

The Berlin (Conn.) Brick Co. recently changed to a new clay bank, and installed a centrifugal electrical pump to take care of water in the clay pit. This plant has made considerable improvements during the past year, and is shipping the greatest portion of its product to New York City.

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DRYER TO REPLACE OPEN AIR RACKS

The I. E. Stiles & Son brick yard at North Haven, Conn., is at present installing an artificial dryer, and is getting ready to install an Autobrik machine. The dryer is being constructed with the Ideal wall design. A crusher and rotary screen was recently installed to furnish ground dry material to improve the consistency of wet clay.

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BUILDING ARTIFICIAL DRYER

Stiles & Reynolds Brick Co. plant in Berlin, Conn., is constructing an artificial dryer and is getting ready to install an Autobrik machine, both of which will be ready for operation some time this winter. This plant is enjoying a very good demand for its product.

✻ ✻ ✻

GRANTED LOAN TO ERECT KILNS

Georgetown, Ont., rate payers have carried a by-law granting a loan of \$40,000 to Smith & Stone for the erection of kilns in connection with the manufacture of porcelain insulators.

FINISHING RECORD YEAR

The Montowese Brick Co., which is located about five miles from New Haven, Conn., report the best year ever had. They expect to finish this year with 7,000,000 brick produced, which exceeds all previous year's records. A great deal of brick from this concern is used in the Yale University campus buildings, and is shipped from the plant by trucks, three of which are operated by the Montowese Brick Co.

* * *

ADDITIONAL KILNS INCREASE OUTPUT

The Whitby (Ont.) Brick & Clay Products Co., under the management of W. Baines, formerly of Mimico, are building kilns which will enable a production of 50 tons per day.

* * *

BUILDING \$20,000 ADDITION

The plant of W. J. Savage & Co., 912 West Clinch Ave., Knoxville, Tenn., is to be enlarged at once by the construction of an addition costing about \$20,000, according to a recent announcement by Mr. Savage.

* * *

KEROSENE ENGINE TO OPERATE DRAG-LINE

The Acme Brick Co., Cayuga, Ind., recently installed a new kerosene engine, purchased from the Worthington Pump & Machinery Corporation, which will be used to operate a drag-line excavator. The excavator is used on the Acme plant for stripping.

* * *

USES STEEL GRATE BARS IN NEW KILNS

The Western Brick Co., Danville, Ill., recently built several new kilns and installed a new type of grate, made of cast steel instead of cast iron. These grates are made of a special metal prepared by the Electrical Steel Co. and are said to cost less than cast iron bars.

* * *

BURNING OIL FOR ONE-THIRD OF CAPACITY

The Mason City (Ia.) Brick & Tile Co. has equipped two of its six plants to burn drain tile with oil. The kilns at these plants are the regular round down-draft type.

* * *

INSTALLING NEW MACHINERY

The Kenyon Brick & Tile Co. of Oklahoma City, Okla., of which A. W. Kenyon is president, will install an additional press, dry kiln and mixer.

* * *

CAPACITY WILL BE INCREASED

The What Cheer (Ia.) Clay Products Co. resumed operations August 28 after several weeks' shut-down for want of coal. Manager Nelson reports that he expects to double the capacity of the plant as soon as the coal situation and the railroad strike clear up.

* * *

ADDS MUCH NEW EQUIPMENT

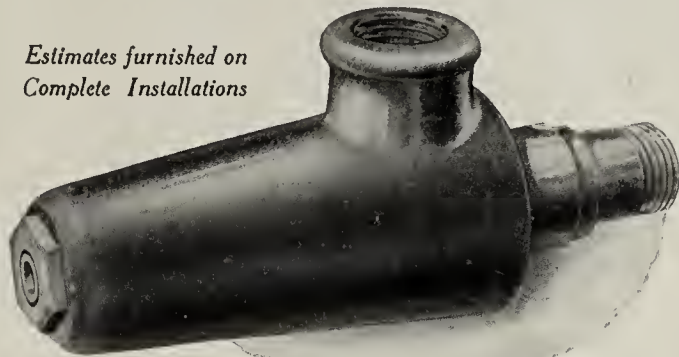
The California Pottery Co. is pushing forward its enlargements at its plant in Merced. The new roofing tile press and 200 additional drying cars are in operation, and the seven new tunnel dryers are in course of construction. A brick cutter has been installed and the company is making its own brick for the new kilns and tunnels. The manager reports that the company is now busy turning out tile for a number of large jobs. The plant is shipping 30 cars per month, and has orders ahead for a hundred cars.

FOERST

FUEL OIL BURNERS

Are absolutely leak-proof. They utilize practically all the fuel particles, assuring a maximum output for a minimum consumption of fuel. They are noted for producing a flame of amazing heating capacity.

*Estimates furnished on
Complete Installations*



*John Foerst & Sons
Fuel Oil Burner Mfrs.
Bayonne, New Jersey*

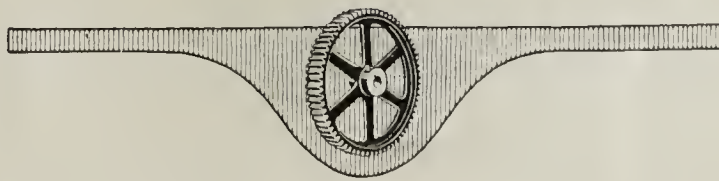
GEARS

SMOOTH running; correct in design, accurate and true to pitch, Caldwell gears are bound to please you. We make all types—machine-molded, cut tooth, mortise gears, worm gears, etc. Caldwell Promptness is Traditional. It is at your service. Our stocks assure prompt shipment.

Let us figure with you next time you are in the market.

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Dallas, Texas, 709 Main Street—Chicago, 17th Street and Western Ave
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Reliable Counsel For Your Business

We offer you a highly technical service combined with common sense methods and everyday practical ability, along with broad commercial ideas.

If you are making any changes in your plant or if you are building we can be of profitable service to you.

Ask for details



Questions and Answers

Best Authorities in Every Clay Working Branch Are Called Into Consultation—Their Advice Is Free to You, Thru These Columns

Address all communications intended for this department to "Editor Questions and Answers, care of Brick and Clay Record," Chicago

REMOVING OVERBURDEN CHEAPLY

1,047. Ohio—We would like to know the advantages of a drag-line for removing an overburden up to 28 feet in thickness. The nature of the overburden is clay and slate. That is, a surface clay not very hard and not very moist. The type of clay we have under the overburden is a fire clay.

First we have a coal seam that is taken off, then we have a fire clay below the coal seam. The fire clay below the coal seam would, no doubt, need blasting. The clay called overburden above the coal would not need blasting.

We have a small steam shovel now which we have been using for this work, but it is not satisfactory. The shovel will dig the clay very nicely, but we are obliged to have cars to carry the clay away from the pit. What we want, we think, is a drag-line to deliver the clay far enough so that it need not be teamed with wagons or cars. We want one operation to get the material out of our way.

In looking up some information about the use of a drag-line scraper after receiving your letter, we looked up the list

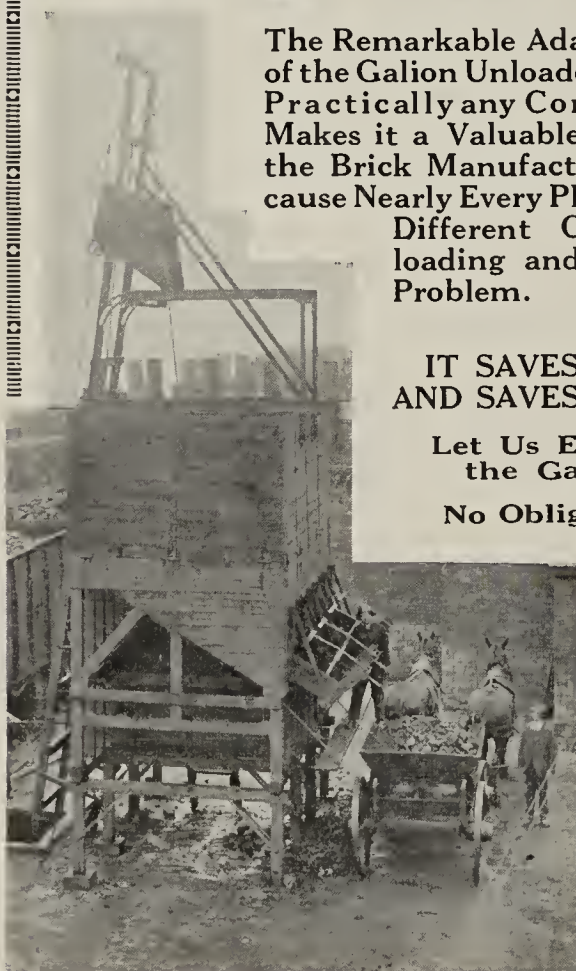
Adaptability

The Remarkable Adaptability of the Galion Unloader to meet Practically any Conditions Makes it a Valuable Asset to the Brick Manufacturer, Because Nearly Every Plant Has a Different Coal Unloading and Storing Problem.

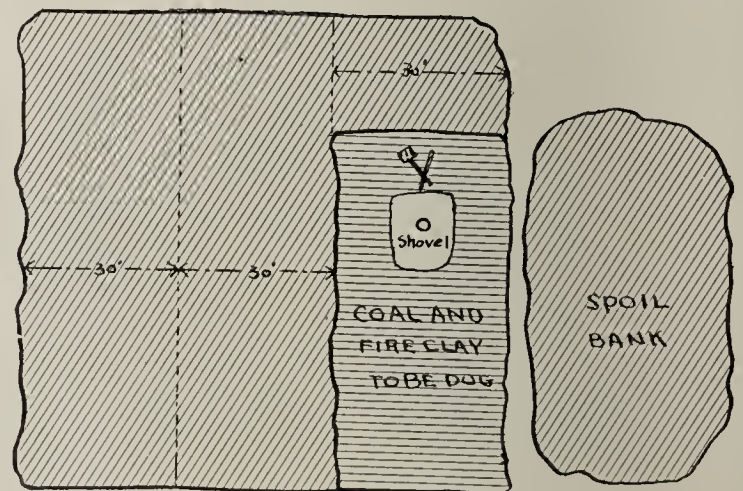
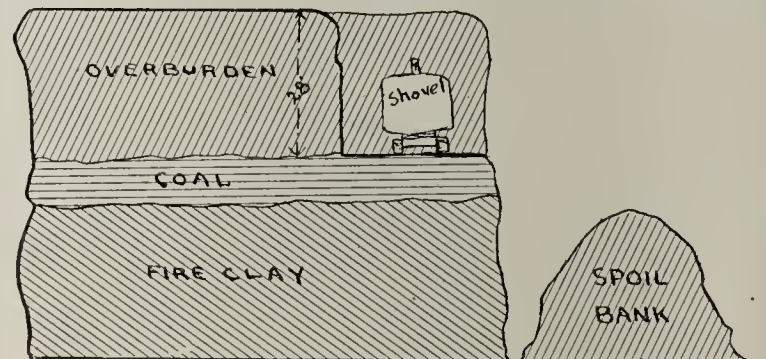
IT SAVES TIME
AND SAVES MONEY

Let Us Explain
the Galion

No Obligation



The
GALION
Iron Works
& Mfg. Co.
Galion,
Ohio



How a Shovel Can Be Used for Both Stripping and Digging. Upper View Shows Cross-Section of a Clay Bank. Bottom Picture Shows a Plan View.

of subscribers to our Cyclopedia and found your name therein. We wish to refer you, therefore, to item 250 on page 49, and also to the advertising on page 224. We believe that this data will answer at least some of your question.

Could you not plan your pit so that the fire clay could be removed in a long line just next to the space that is to be stripped? In other words, operate your pit in strips of about 30 feet in width. When the fire clay has been taken out your stripping shovel or a drag-line could follow up and dump your overburden into the hole left in the old workings. This method is followed very successfully by many plants, but of course requires several months planning and digging in order to start it.

✂ ✂ ✂

BURNING DRAIN TILE WITH OIL

1,050. *Illinois*—Can you give us information or the name of some drain tile manufacturer who is burning drain tile with oil in round down-draft kilns?

Do you know about how many gallons of fuel oil is considered equal to a ton of Illinois coal for burning clay products? I note where one oil burner manufacturer claims that 60 to 80 gallons equal a ton of coal. With fuel oil at five cents per gallon, this would be equal to coal at \$4.00 per ton. Do you think this is about right?

Ordinary Illinois coal contains about 12,000 B. t. u.'s per pound. Oil, on the other hand, averages 18,000 B. t. u.'s per pound. In the Chicago market, oil is selling at \$1.40 to \$1.50 per barrel of 42 gallons. A gallon weighs $7\frac{1}{2}$ pounds. Hence on this basis you get 37,800 B. t. u.'s for one cent. Against this, coal is costing about \$10 per ton, and figuring 12,000 B. t. u.'s per pound, it means that for one cent you get only 24,000 B. t. u.'s. Hence from this comparison you would be getting a third more heat value from oil for the same price than you would from coal.

Moreover, oil burning is more efficient, since there is no ash nor moisture content, and it also requires less men. Against this is the disadvantage of the cost of the installation for oil burning, which runs from \$6,000 to \$10,000 for a plant.

The cost of atomizing the oil is not very much, and would be offset by the cost of distributing coal to kiln fire boxes.

The favor in general is with oil, except for the fact that the price of oil fluctuates considerably, and it is this uncertainty that has caused a great number of manufacturers to withhold the installation of oil burning equipment.

In recent years, however, the uncertainty as to coal prices and deliveries is getting so that it is on a par with oil uncertainty, and we would not be a bit surprised to see a great number of clay plants and other industrial concerns install oil burning apparatus.

Some engineers have figured that a ton of coal is equivalent to approximately $2\frac{1}{2}$ barrels of oil. This would make the oil burner manufacturer's claims which you quote in your letter a little too much in his favor. Perhaps, however, in the figure he quotes you he has included the efficiency of oil over coal, in which event he may perhaps be somewhere near correct.

✂ ✂ ✂

WANTS TO REMODEL STEAM DRYER

1,051. *Missouri*—We would appreciate any information which you may be able to give regarding the economy which could be expected by remodeling an old steam pipe dryer so that waste heat could be used from the cooling kilns.

The ten track steam pipe dryer is 130 feet long and it is necessary to use live steam at night, besides exhaust steam during the day in order to properly dry the brick.

The waste heat from 18 round, down-draft kilns could be utilized in the dryer. These kilns are turned on an average of once every 20 days.

The clay to be dried will stand rather severe drying treatment.

The economy which can be expected by remodeling an old steam pipe dryer into a waste heat dryer can be figured in this way. We will take for granted that the use of exhaust steam during the day does not cost you anything, altho the



Dryer, Transfer and Clay Cars,
with Flexible Bearings.
Switches, Turntables and Track.
THE CHASE FOUNDRY & MFG. CO.
COLUMBUS, OHIO

CHASE

WOULD YOU LIKE TO
MAKE BETTER
BRICK
?

USE R. & H. PRECIPITATE CARBONATE OF BARIUM TO PREVENT SCUMMING AND THEREBY PRODUCING BRICK THAT ARE RICHER AND DEEPER IN COLOR, CLEANER AND CLEARER IN APPEARANCE.

IF YOU ARE TROUBLED WITH SCUMMING, WRITE US TODAY FOR CIRCULAR.

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CHEMICAL CO.,
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TRENTON
NEW ORLEANS
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SAN FRANCISCO

If you are in need of

Additional Capital

Get into communication
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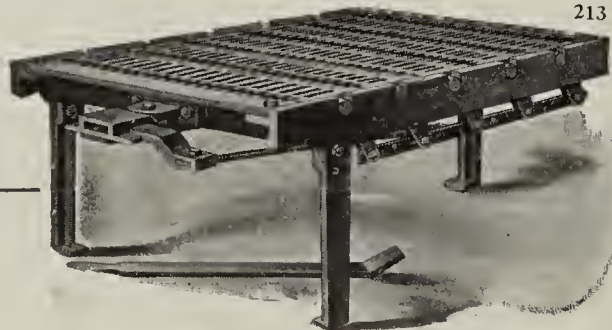
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PHILADELPHIA

ELIMINATION OF LOSSES DUE TO KILN GRATE TROUBLES, is the result when CANTON GRATES ARE INSTALLED

Canton Grates will save you about one-fourth on your fuel bills. They will enable your operators to attain and maintain temperatures without excess use of fuel.

It won't cost you to get complete information today and it may mean profit for you. It has to many others.

Write us



The Canton Grate Co.

1709 Dillon Place,

CANTON, O.

added back pressure on the engine does cost a little. You can easily, however, determine the amount of coal that you consume at night in order to supply live steam to the dryer. This would represent your present cost of operation.

The waste heat dryer will cost nothing except the power necessary to operate the fans. In your case this power should be approximately 35 and 25 horsepower. If you drive these by electric motor, you can easily determine the cost of this operation based on the price that you must pay for electric power. In addition, a charge for interest and depreciation on the cost of installing a waste heat dryer system would have to be added to the cost of power in order to arrive at a figure with which to compare the present cost of operation.

The greatest economy, however, would be found in the greater drying efficiency that you would obtain. The pipes in the steam dryer may at times leak more or less. This leakage adding moisture around the brick reduces the drying capacity. A thoroly dry brick from any good dryer saves fuel in the water-smoking period of the burning, and lowers breakage percentage on account of the smaller shrinkage.

It is difficult for us to give you any definite figures on the cost of the installation, as that varies so much at different points.

In the Wake of the News

**Being Brief Mention of a Host
of Interesting Happenings in the
Varied Fields of Clayworking**

WILL P. BLAIR IN CHARGE OF CONVENTION.

Will P. Blair, vice-president of the National Paving Brick Manufacturers' Association, has been appointed the local man in charge of the Convention of the American Society of Municipal Improvement, which will be held in Cleveland, Ohio, October 2 to 6. Three hundred persons are expected to attend this convention.

B. J. GRAHAM, NEW HEAD OF CLEVELAND DENISON COMPANY

Bert J. Graham, who has been general manager of the Denison Interlocking Tile Corporation, Cleveland, Ohio, has been named president of that company, succeeding Robert Gamble, who retired as head of the company at the recent directors and stockholders meeting of the firm.

R. R. SHIVELEY GOES TO DRAKENFELD

Dr. R. R. Shiveley, for many years in charge of the research department of the Monongah Glass Co., at Fairmount, W. Va., and an active member of the American Ceramic Society, has been designated as chief technologist for the B. F. Drakenfeld Co., of New York, large handlers of pottery supply materials.

LOUIS ERNST SUCCEEDS K. B. GRAHN

Louis Ernst, vice-president and general manager of the Louisville (Ky.) Fire Brick Works, has recently become president and general manager, succeeding to the vacancy caused by the death of Karl B. Grahn, president, who died some time ago. Mr. Ernst has been actively connected with the company for many years.

JERRY LEONARD RESIGNS AS SUPER- INTENDENT

Jerry Leonard, who has been superintendent of the Atlas Brick Co., Hudson, N. Y., for the past two years, has resigned.

P. M. CRANE ACCOUNTANT FOR PROGRESS

Paris M. Crane, formerly manager of the old East End Brick Co., Louisville, Ky., is now looking after the accounting for the Progress Coal Co., and also the Progress Pressed Brick Co., of the Hillenbrand interests.

GRIM REAPER TAKES LOUIS HELLING

Louis Helling, 50 years old, who conducted a brick yard in Owensville, Mo., for many years, died at his home there after several years' illness. He is survived by the widow and two sons, his aged parents and several brothers and sisters.

DEATH TAKES ADAM REED

Adam Reed, 62, prominent Zanesville, Ohio, pottery manufacturer, is dead at his home there. His career in the clay industry began back 35 years ago when he was employed in the S. A. Weller Pottery. Later he formed a partnership with John D. Peters and founded the Peters and Reed pottery about 24 years ago.

WILL REBUILD PLANT FIRE DESTROYED

According to Frank Rhodes, president of the Excelsior Brick Co., of Montgomery, Ala., which was destroyed by fire recently, at a loss of about \$30,000, plans have already been completed for the immediate reconstruction of the plant.

OPPORTUNITY TO ESTABLISH PLANT

Puente, Cal., is pointing out that practically all the older buildings there were built of brick from Puente clay, and that the door is wide open for a profitable plant at that point.

WANT PLANT AT VENTURA

Ventura is another California city that is crying for a local brick plant. There are several available deposits in the county and Venturans are looking back to the good old days when they made their own brick at \$6 per thousand instead of importing from Los Angeles at \$25 per thousand.

NEW CALIFORNIA FIRE BRICK PLANT

Paso Robles, Cal., now has a temporary plant turning out fire brick. A new kiln is being constructed capable of burning 100,000 brick at a time. J. M. Shimeall of Los Angeles, experienced in brick manufacture, asserts that they are of good quality.

TO BUILD MISSION TILE PLANT

B. F. Angulo and his two sons who have been manufacturing mission tile at Santa Barbara, Cal., have purchased a five-acre deposit of excellent clay at Reseda, 20 miles from Los Angeles, and will establish there a mission tile plant. The plant will have a capacity of 2,600 tiles per day, and will employ 30 men.

ORGANIZE TO MAKE INSULATING BRICK

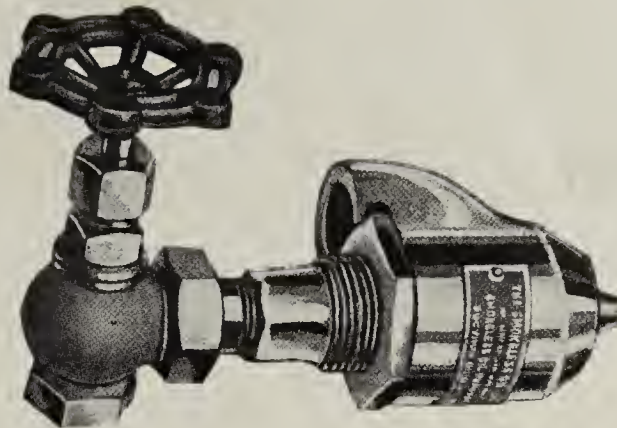
The Feather-Stone Insulating Co. is the name of a new incorporation in Southern California, a closed corporation, capitalized at \$1,000,000 with \$750,000 of the stock sold and \$250,000 in reserve. The purpose of the company is to manufacture insulating brick from diatomaceous earth. The company is operating its initial factory three miles from Covina, where it has a deposit underlying about 511 acres at a depth of 350 feet. The officers of the company are Robert Burhans, Jr.; J. C. Specht, vice-president, and R. W. E. Cole, secretary.

CONNECTICUT EXPECTS A GOOD 1923

Connecticut brick manufacturers, on the whole, are experiencing a very good season. About 15 per cent. of the brick manufactured in the vicinity of Berlin and New Haven are being shipped into New York City by rail. Some factory

SUCCESSFUL OIL BURNING

*means a reasonable quantity of fuel,
an even shrinkage of the ware, a
thorough distribution of the heat and
a quick burn.*



**The Special Kiln Burner No. 8
is the one sure way to Successful Oil Burning**

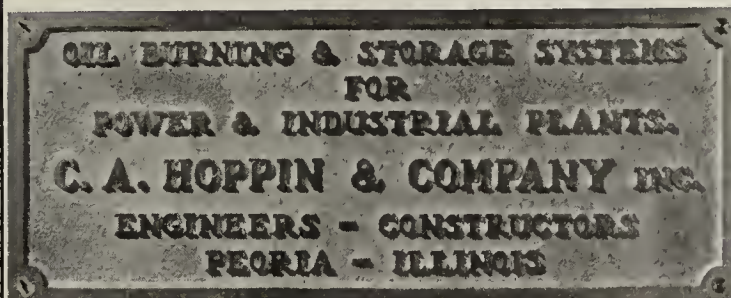
The SMOKELESS OIL BURNER CO.
BUCYRUS, OHIO

Tanks Pumps Meters Strainers Etc.

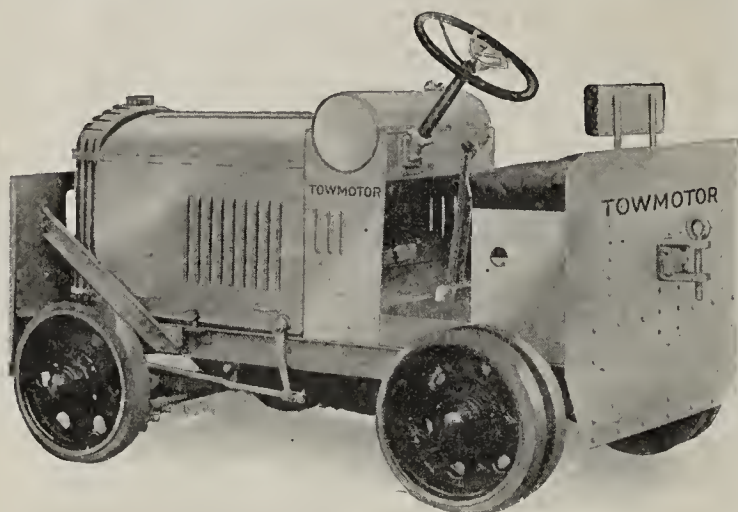
100% Burns

**Besides effecting enormous
savings in labor, time and fuel,
the C. A. Hoppin & Co. Oil
burning system means 100%
BURNS at all times.**

*Let us send you complete data
It won't obligate*



Take Five Men Off Your Payroll

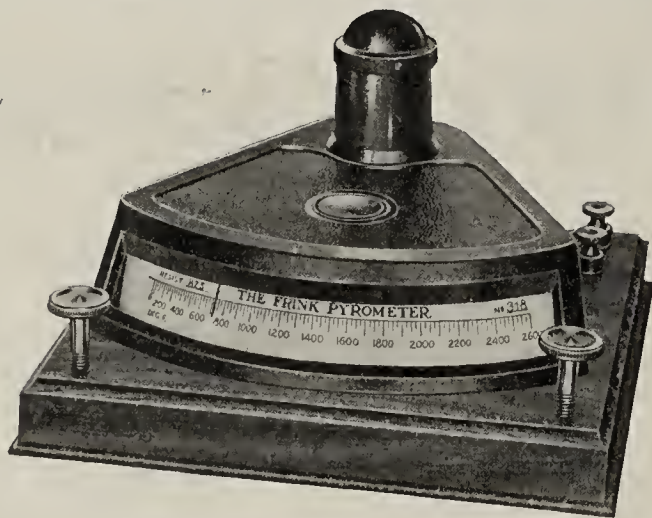


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pays for itself in a short time. One user says: "The Towmotor is doing the work of five men and one team and is working every day satisfactorily." If you want to reduce your costs send for details. The Towmotor operates with gasoline—built to last.

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The Reason Why

After long experience and effort we have succeeded in bringing into use an exceptionally sensitive but exceedingly hardy instrument; an instrument free from tedious adjustments and equal to any occasion. The advent of this instrument, together with our maintenance of our guaranteed service, have been responsible for our phenomenal success.

WRITE FOR DETAILS

THE FRINK PYROMETER COMPANY
LANCASTER, OHIO

construction is going on in Connecticut, but a better year with respect to local business is anticipated for 1923. Coal and textile strikes have hit this section harder than many others. Despite this condition, many of the yards are over-sold and others are disposing of everything they manufacture.

Connecticut manufacturers use wood for burning for which they are paying high prices. At the present time wood is costing from \$10 to \$12 or more a cord. However, some of the manufacturers have been fortunate enough to buy wood as low as \$4 from the woodsmen, loaded on freight cars. By paying \$2.50 per cord to a trucking concern, the fuel has cost them only \$6.50 per cord. They use about four cords of wood per arch. The cheapest labor is being paid a wage of \$3.75. \$4.50 is the prevailing rate for labor in Connecticut.

INCORPORATES FOR HALF MILLION

The Bove Brick & Lumber Corporation has been organized at Wilmington, Del., with a capital of \$500,000. The Colonial Charter Co. represents the company.

DETERMINING VALUE OF FLORIDA CLAYS

Experiments being conducted on Florida clay deposits to determine their possible value from a commercial standpoint, mention of which was recently made in Brick and Clay Record, are in charge of the various Chambers of Commerce of Florida cities, and have been instigated on a cooperative basis in the belief that Florida clays are of such quality as to merit the establishment of more industries there than the state now boasts. Deposits of these clays of all kinds are being sent by the Chambers of Commerce to Cornell University where the tests are being made under the direction of Professor Olin G. Bell, professor of geology.

While much of this clay is more suitable for brick, tile and pottery manufacture, deposits of white clay are also being tested which, it is believed, will prove entirely suitable for filler use. This is said to be a fine white plastic clay, free from grit, gravel, discoloration and impurities of any kind to a large extent. Kaolin deposits are also being tested.

HOOD'S MEN VISIT COLUMBUS PLANTS

A party of brick men, connected with the B. Mifflin Hood Brick Co., of Atlanta, Ga., visited Columbus recently and were shown over a number of plants in the Hocking Valley field by H. F. White, manager of the brick department of the Hocking Valley Products Co. In the party were Messrs. Thrower, McDowell, Rayfort and Couch.

CAR SHORTAGE SERIOUS IN SOUTH

Despite the settlement of the railroad strike the clay industry in the South is unable to secure more than 25 per cent. of its car requirements at this time. Plants that have been shut down the past month because of the car shortage are getting rid of some of the surplus stock in the yards, and within another two or three weeks a number of these plants will be able to resume operations. There are still millions of brick stored in the yards all over the Southeast, and there can be no great improvement for the industry as a whole until most of this brick has been shipped.

The outlook gives promise of an unusually good volume of business in the next six or eight months, and manufacturers in Atlanta, Ga., are of the opinion that most of the plants over the district will secure enough business to keep them in steady operation, and at near capacity, for a period of some months.

POSTON BRICK CO. LOSES DRYER

Fire of unknown origin completely destroyed the dryer of the Poston Brick Co., Springfield, Ill., on the night of August 11. Damage was estimated at \$800.

KIMBALL-WHEELER CHANGES NAME

The Kimball-Wheeler Brick Co. of Chicago has changed its name to Burt T. Wheeler Brick Co. This company is one of the large dealers of face brick in Chicago.

DUTCH FACE BRICK MAY INVADE CHICAGO

A trial shipment of 100,000 face brick will reach the United States early in November from Holland, according to an announcement by the Netherlands Chamber of Commerce of Chicago. If these brick are found suitable for use, it is probable that regular shipments will be imported.

INSTALLING MODERN EQUIPMENT

The old firm known as the Tiernan Brick Co. at Macomb, Ill., has recently been incorporated with a capital of \$100,000, and has installed new improved equipment. The present capacity is more than five million brick per year. Chicago contractors have bought the output for the next year. Directors and officers are: C. J. Tiernan, L. P. Tiernan, Prof. Hollis, Judge Elting and Mr. Sennoett.

RECOMMENDS LOCAL RATE REDUCTION

The rate on paving brick from Danville, Ill., to Piper City, Ill., was found unreasonable in a tentative report to the Interstate Commissioner, on September 14, by A. S. Worthington, an examiner, on complaint of the Pfizenmayer Construction Co., of Terre Haute, against the New York Central Railroad. Examiner Worthington suggests that a reasonable rate be prescribed for the future and advises that the Commission order an award of reparation to the complainant on such shipments as moved after the period of Federal control.

ILLINOIS COMPANY TO SHIP BY BARGE

The Chicago Retort & Fire Brick Co., Ottawa, Ill., will soon purchase a motor driven barge to transport its product from the factory to its Chicago warehouse via the Illinois & Michigan canal. It is hoped to have the barge in operation in time to move a large quantity of brick before the close of navigation this fall. The fire brick demand is good at present, but owing to the shortage of freight cars, the company is not operating at capacity. It is believed that eventually brick can be transported from the plant to points on the Illinois and upper Mississippi Rivers, as well as to Chicago, by way of the canal.

STANDARD BRICK PLANT RUNS STEADILY

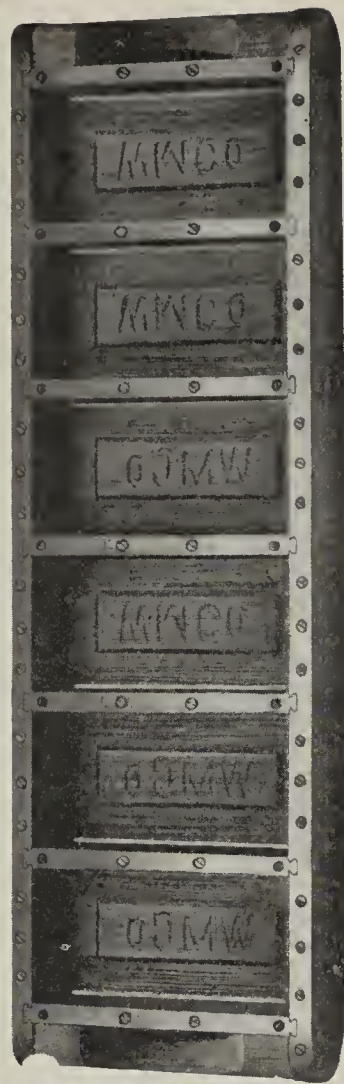
At Evansville, Ind., the Standard Brick Co. has been running steadily, getting plenty of coal from the wagon mines close at hand. This has meant truck hauling from mine to brick plant, at a considerable saving, as wagon mine coal is generally sold by small producers under the tippie mine price.

WANT FAIR CHANCE AT ROAD CONTRACTS

Charging that specifications for state roads are unfair and that members of the brick and asphalt industries and contractors have been barred as a result from participation in state highway construction, the Indiana Highway Industries, organized in Indianapolis at a meeting at the Columbia Club, framed a series of resolutions to be placed before Governor McCray asking modification of the specifications.

The new organization consists of representatives of the paving brick, rock asphalt and lake asphalt industries and contractors who work in such materials. Members of the executive board are Robert H. McKinley, J. A. McDonald, J. C. Kelly. William F. Fisher also was appointed but had not accepted at the time this was written. The contractors are to elect a representative within one month.

The organization proposes:



The Mold For You

WELLINGTON molds are exactly what you need. They fill the bill at a great saving in cost and upkeep.

Wellington molds are furnished in any type or size, with panels, letters, etc. There is no better mold on the market.

Let us quote you our prices

**The
Wellington Machine
Co.**

WELLINGTON, OHIO

THWING

HIGH RESISTANCE MULTIPLE RECORD

PYROMETERS

THWING PYROMETERS

attached to your kilns will eliminate guesswork and the loss that it causes through improperly burned ware. They will enable your burners to fire intelligently at all times, by giving them a complete record of every burn from the time the fires are lit until the burn is completed.

The progressive clay products manufacturer uses Thwing Pyrometers.

Write for complete information and catalog.

THWING INSTRUMENT COMPANY

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**HY-GRADE MANGANESE CO.
WOODSTOCK, VA.**

**Miner
and
Grinders**

**Especially Prepared
for Brick Making**

DIESEL ENGINES FOR CLAY PLANTS

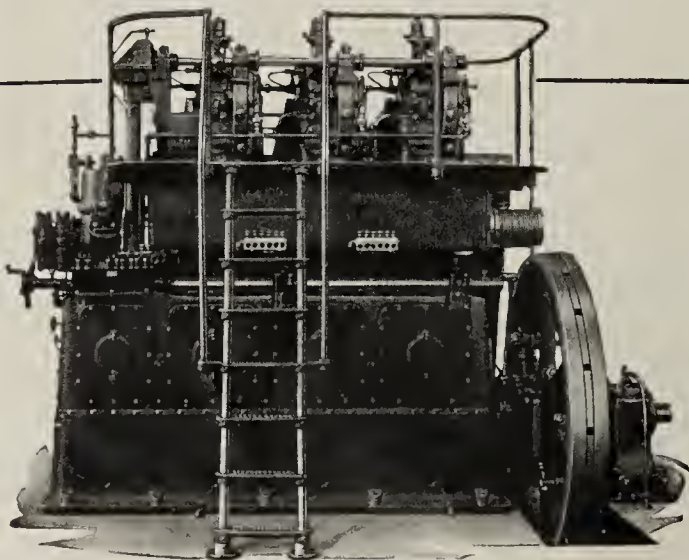
Economical Power—Efficient Operation—Convenient—Conservative—Complete—Easy to care for—Always ready and reliable.

This engine operates on cheap fuel oil. Fuel storage space decreased. A small amount of fuel makes a big amount of power.

Send for new catalog, either vertical or horizontal types furnished.

**THE HADFIELD-PENFIELD STEEL COMPANY
Bucyrus Ohio**

Formerly the American Clay Machy. Co.



The modification of state highway specifications to admit all standard types of construction recognized as such by the United States Bureau of Public Roads, to the end that the various producers of paving materials and contractors may have opportunity to compete for public works and to the end that the public may have the benefit of such varied competition.

Consideration of the proven merit and life of the various types of pavements and the highway engineers' advance estimate of cost of the same, instead of the present practice of awarding contracts to the lowest and cheapest type regardless of merit and advance estimates.

Recognition of the principle of reconstruction such as is the practice in other states and by which the old gravel and macadam roads are used as a base for new pavements, thereby saving the tax-payers from 25 to 50 per cent. of the cost of new construction.

Non-interference of the state highway department in the building of county roads for the purpose of influencing county officials to build the type of pavement favored by the department. Education of the public by laying before it the actual conditions as to original cost and maintenance of highways which exist in Indiana as compared with other states of the union.

KANSAS PLANT TO BURN OIL AND GAS

The Noll Brick & Tile Co. of Wichita, Kan. is about ready to begin production at their plant three miles north of the city limits. The buildings are completed and most of the machinery in place. The first brick made will be used to make kilns in which to burn the brick for the permanent kilns. Oil and gas will be used as fuel. The company has a supply of good shale sufficient to last many years, and will make brick varying in shade from buff to red. Hollow building tile will also be manufactured as the demand for it is good.

OPERATING 50 PER CENT.

The Louisville (Ky.) Fire Brick Works, according to sales-manager, J. F. Bell, is now operating about 50 per cent. of capacity at both the Louisville and Grahn, Ky., fire brick works, and is again able to secure enough cars to move clay to Louisville to supply the local plant.

DRAIN TILE BUSINESS GOOD

T. Bishop, of the Southern Brick & Tile Co., Louisville, Ky., says he has kept the drain tile department going steadily this summer, as the company has several good tile laying jobs. Right now it has one machine crew and one hand crew out, but later in the fall and over winter and spring will have ten or twelve crews at work.

SELLING STOCK TO RESUME OPERATIONS

The sale of the \$55,000 stock issue of the St. Clair, Mich., brick plant is progressing nicely, according to Heartt & Lawton of Detroit, who are handling the issue. As soon as the entire stock is disposed of the title to the property will be cleared and operations resumed a few days afterwards, it is said.

DISCOVERS CLAY PIT IN MISSOURI

F. A. Toelke, of Gerald, Mo., reports that he has just discovered a large clay pit eight miles north of Owensville, Mo. He estimates that the pit contains more than 700,000 tons of clay. The pit is 600 feet in diameter and the pure clay protrudes all over the place. Toelke, who represents the American Refractories Co., expects his company to buy the farm. The company holds leases on many farms at Rosebud, Canaan and Owensville.

WANTS \$194 REPARATIONS

The Doniphan (Neb.) Brick Works filed a complaint with the Interstate Commerce Commission on September 23 against the Union Pacific and St. Joseph & Grand Island Ry., on which its plant is located, for reparation of \$194 on shipments of slack coal totaling ten carloads from Rock Springs, Wyo., to Doniphan, moving between April 17 and September 18, 1919.

NEW JERSEY ADDS PLANT TO FAMILY

The Columbia Brick Co., East Orange, N. J., has been organized with a capital of 5,000 shares of stock, no par value, to manufacture common brick and kindred burned clay products. The company is headed by Richard and Daniel E. Reagan, Washington Street, East Orange.

BUY PLANT OF BROOKFIELD GLASS CO.

The Ceramic Products Corporation, Old Bridge, N. J., recently organized with a capital of \$200,000, has acquired the local plant of the Brookfield Glass Co., consisting of a number of buildings on a tract of more than 100 acres of land. The new owner will make a number of improvements in the works, as well as repairs to machinery, and will install certain new equipment for the manufacture of a line of burned clay products, including pottery specialties. The new company is headed by Richard F. Dalton and Walter Geer, Jr.

FIRE PREVENTION EXPOSITION OCTOBER 2-7

Manufacturers of fire-resistive materials and of fire-fighting and retarding apparatus, for the first time will have the opportunity of taking part in a Fire Prevention Exposition to be held October 2 to 7 at the Twenty-second Regiment Armory, New York City. The exposition originated with the Fire Prevention Committee of the National Association of Insurance Agents as part of its program of fire prevention activities, and will be the greatest educational feature of Fire Prevention Week, to be observed during the same period. It is purposed to show at the exposition the latest ideas in fire-safe construction, and also to demonstrate to the public the proper appliances to be used in fighting and preventing fires. Lectures and motion pictures will aid in educating the public on this important subject.

LOANS \$3,500,000 FOR CONSTRUCTION

The Metropolitan Life Insurance Co. on August 16 authorized loans on Bond and Mortgage amounting to \$3,500,000 of which over one and one-third million was for housing loans, one and one-quarter million on business buildings and six hundred and sixty-eight thousand were farm loans. The housing loans were on 278 dwellings and 15 apartment houses to accommodate 404 families. These were in New York, North and South Carolina, Tennessee, Alabama, Florida, Georgia, California, Oregon and Illinois. The business buildings were chiefly New York City, Pennsylvania and North Carolina. Farm loans were mostly in the West and Southwest, the largest being in Iowa, Indiana, Illinois, South Dakota and South Carolina.

PINE HALL BRICK CO. FORMED

The Pine Hall Brick Co. has been incorporated at Pine Hall, N. C., with a capital stock of \$100,000 and with the following incorporators: E. R. Rankin, C. L. Lester and F. F. Steele.

NEW SHEEHAN BRICK WORKS PLANNED

George C. Sheehan, who has for many years operated the Sheehan Brick Works at Grace, N. C., is planning the erection of a plant at Fletcher, N. C., which will have a capacity

HAULS MORE LOADS AT LESS COST

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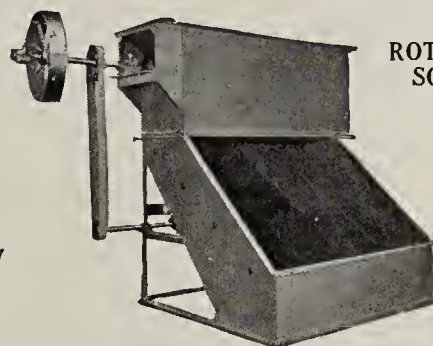


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INDUSTRIAL LOCOMOTIVES



Page 237



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If you need kiln bands, dryer cars, screens, or other clay working equipment, be sure to get our catalog and prices.

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CONVEYOR TROUGH and FLIGHTS
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GENERAL SHEET and
LIGHT STRUCTURAL WORK
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of 50,000 common brick per day, and will also produce drain tile. Mr. Sheehan has secured over 100 acres on the Oliver Rutledge farm, and in addition to constructing the clay plant, will develop the farm lands and raise livestock. Up-draft and down-draft kilns will be built on the siding location, giving easy access to the Southern Railroad. Mr. Sheehan is now making necessary investigations to determine the best machinery to install, and expects to be manufacturing brick at his new plant by April, 1923.

LABOR TROUBLE CLOSES TWO PLANTS

Two of the plants of the Nelsonville (Ohio) Brick Co. are shut down because of labor difficulties. The question of recognition of the union is the one that is in controversy.

OHIO COMPANIES RAISE WAGES

A 20 per cent. increase in wages effective immediately has been announced by the Central Refractories Brick Co. at New Lexington, Ohio. The Hocking Fire Clay Co. at Nelsonville announced a 16½ per cent. increase at the same time.

SHAWNEE PLANTS RAISE WAGE 20%

All of the plants in the Shawnee district of Ohio have been placed in operation, starting September 25, following the settlement of the wage question. Workers in these plants stood out for an advance in wages of 20 per cent. which was granted.

COLUMBUS FACE BRICK PRICES RISE \$4

Face brick prices in Columbus and central Ohio territory will advance, it is said, as a result of recent wage advances given the men at many Hocking Valley plants. It is believed that the advance will average about \$4 per thousand, making face brick prices range from \$28 to \$38 f. o. b. plants.

SETTLE STRIKE AT MASSILLON COMPANY

A strike of employees in the brick plant of the Everhard Co. at Massillon, Ohio, which was of ten days' duration, has been settled and operations have been resumed, it was announced by company officials. A liberal advance in wages was given the men, it was stated.

KILN SHED DAMAGED BY BLAZE

Damage amounting to about \$2,000 resulted from a fire which destroyed the roof of a kiln shed at the Shale Brick Co. of Columbus, Ohio, recently. The flames lit the sky for more than half an hour, and attracted a large crowd to the scene. The fire did not injure the 400,000 green brick set in the kiln.

NATIONAL OPENS REBUILT PLANT

The National Fireproofing Co., has placed its improved plant at East Palestine, Ohio, in active operation. During the summer of 1918 the company sustained severe loss by fire at East Palestine, and during the last winter the plant was rebuilt. The plant is now on an active production basis, and has a capacity of 14 kilns. Coal and clay used by the company are obtained from the same mine, but the plant is electrically operated.

CONTRACTORS MAY TAKE OVER PLANT

It is probable that the Roseville (Ohio) Brick Plant will be operated under the direction of Billiter & Oliver, contractors, in order that they may secure enough material to finish the paving of four miles of highway on the Zanesville-Dresden road. Work on this project, as well as on another paving job under contract to Brown & Crook, has been delayed because of the irregular operation of the Roseville plant, and Billiter & Oliver will be required to furnish brick for both projects should they take over the plant.

FORM CLAY COMPANY IN ASHEVILLE

The Asheville (Ohio) Fireproofing Co. has been incorporated, it is reported, with a capital of \$30,000 to manufacture all kinds of clay products, including shale brick, fireplace tile, roofing and hollow ware. Incorporators are W. C. Nothstine, John H. Dum, Howard N. Hedges, Fred Cook and Milt Morris.

QUEISSER SECURES LARGE ORDERS

Two of the largest or most unusual face brick contracts of the year have just been closed by the R. L. Queisser Co., Cleveland, Ohio. One is for 1,000,000 face brick for the Moreland Courts Garden Apartments, first unit of which is now being constructed. McArthur Old English brick will be used, a material that is in keeping with the architectural ensemble of the property. Several hundred thousand brick will also be supplied by the Queisser company in connection with the J. L. Free Co., Carnegie-East Eighty-Ninth apartment building, now being built. The McArthur smooth Colonial will be used for this project.

CONTINENTAL BUYS MORE PROPERTY

A special meeting of the stockholders of the Southern Sand, Gravel & Supply Co., of Columbus, Ohio, was held recently to ratify the action of the board of directors in the acceptance of a contract with the Continental Clay Co., of Columbus, to sell certain property to the Continental Co. The concern holds property at McDowell St. and the Scioto River, which is a dredging proposition. Warren B. Ferris, head of the Continental Clay Co., has been president with Joseph F. Hayes, secretary. The property has been operated by the Continental Clay Co. for some time and now it has been taken over by that company by an agreement of purchase.

FORM NEW CLEVELAND SUPPLIES COMPANY

Announcement of the organization of a new brick and building supplies company for the Cleveland, Ohio, district was made this week.

Robert C. Mitchell and J. M. Beville, well known in the Northern Ohio territory, have formed the Mitchell-Beville Co., and will conduct a general building supply business. Headquarters and main office will be at 1814 Discount Building.

Few are better known to the building industry in Cleveland and vicinity than Mr. Mitchell and Mr. Beville, Mr. Mitchell formerly having been general manager of the old Farr Brick Co., until it was absorbed with other large concerns in the Cleveland Builders Supply & Brick Co., while Mr. Beville also was connected with the Farr Brick Co., and for the last seven years with the Cleveland Builders Supply & Brick Co.

Officers of the new company are: President and general manager, R. C. Mitchell; vice-president and sales manager, J. M. Beville; treasurer and secretary, F. F. Gentsch.

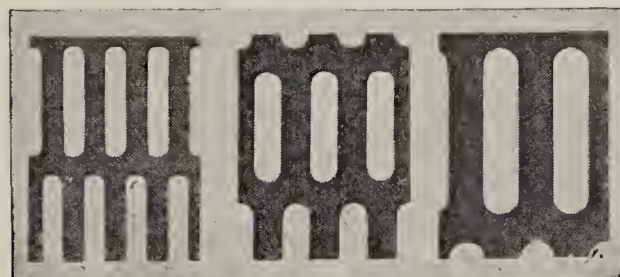
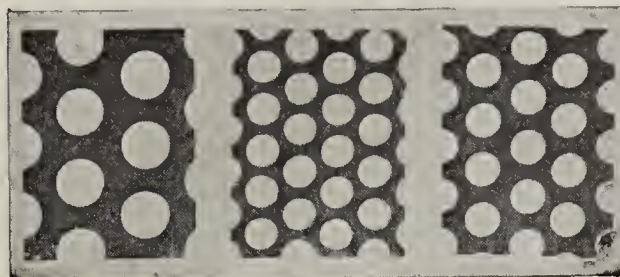
The new firm will be ready to announce its full lines at an early date.

CLAY PRODUCTS AT COMING CONVENTION

Members of the brick and clay products industry in Cleveland, Ohio, are taking an active part in the coming convention and exposition of the American Society for Municipal Improvement, to be held at Hotel Hollenden, Cleveland, the week of October 16. An exposition of materials and equipment will be a feature of the convention. Details of this work are being arranged by Maurice B. Greenough, retiring secretary, and Stanley A. Knisely, economist, of the National Paving Brick Manufacturers' Association.

Another feature will be a tour of Cleveland, on an inspection of municipal work, for the more than 500 members

Perforated Steel Screens



For Screening Clay, Shale, Sand, Gravel, Stone and Cement

All sizes and shakes of holes in metal of proper thicknesses to give the best screening results.

Sheets furnished flat or rolled to shape for revolving screens.

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Test Special Rubber Belting
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Steam Hose
Water Hose
Pump Valves

New York Boston Chicago
Philadelphia Pittsburgh
St. Louis Salt Lake City
San Francisco

plant. Any reliable concern who wishes to do business may secure further details from Mr. Walker.

BRICK MANUFACTURERS ASK FUEL PRIORITY

Virginia brick manufacturers, members of the Virginia-Carolina Brick Manufacturers' Association, have made a request to Alexander Forward, State Fuel Distributor, Richmond, Va., to place state brick plants on the priority list for fuel supply. The scarcity of coal has caused one plant in Nansemond County to close down and a number of other producers in this same section are now refusing orders in anticipation of being forced to curtail production within a few weeks. Other plants in the state that have been fortunate enough to create reserves, are said to have sufficient stock on hand to maintain normal delivery until late in September, and with present fuel supply will be forced to fall back on these stocks for all incoming orders. H. D. Garden, president of the association, and Jordon A. Pugh, secretary, have made a joint appeal in the name of the association for consistent fuel supply, setting forth that the bulk of the building now under way in the state depends on the establishment of this priority.

WEST COAST PLANT DESTROYED BY FIRE

The Star Brick & Tile Co. plant of Bay View, Wash., burned to the ground August 27. The loss amounts to \$20,000, partly insured. C. B. Mayhugh, general manager of this plant for the past 12 years, informs us that this is his first experience with fire in his many years of work as general manager of brick plants.

* * *

Hamilton (Ont.) Stock Brick Supply Co., Ltd., has surrendered its charter.

STOCKHOLDER IN TRACTOR FACTORY

Neil F. Campbell, brick manufacturer of St. Thomas (Ont.) is interested in a company recently incorporated to manufacture tractors.

LARGE CLAY PLANT FOR HAMILTON

The Canadian By-Products Co., Ltd., Hamilton, Ont., has been incorporated with a capital of \$600,000 to manufacture and deal in brick, drain tile, sewer pipe, terra cotta, and so forth.

CANADA'S CLAY DEPOSITS

Canada has valuable deposits of fire clay, brick and tile clays and earthenware clay. Fire clay occurs at Shubenacadie and Middle Musquodoboit in Nova Scotia and several localities in Southern Saskatchewan as well as at Clayburn, B. C. It also occurs on the Mettagami and Missanobie Rivers in Northern Ontario, and at the Athabasca River below Fort McMurray. Semi-refractory clays occur in the coal measures at Westville, N. S., at Flower Cove and Minto, N. B., and at several points in Southern Saskatchewan. Brick and tile clays occur thruout Canada, Ontario being the largest producer with over 50 per cent. of the total Canadian output. Earthenware clays occur in Southern Saskatchewan and Nova Scotia.

UNINSURED PLANT SUSTAINS HEAVY LOSS

The main building of the Grimsby (Ont.) Brick & Tile Co., situated three miles from the town, was destroyed by fire on August 26. The loss will probably be \$50,000 and there is no insurance. The plant was owned by Mayor Farrell and Robert Crane.

TILE COMPANY ORGANIZED IN TORONTO

The Loxel Tile Co. of Ontario, Ltd., Toronto, has been incorporated with a capital of \$60,000 to manufacture and deal in tile and brick and to erect the necessary plant for their manufacture.



We Ought to Know

We've spent over thirty years building tanks for all sorts of uses. Our engineers, designers and workmen are constantly thinking tanks. Our products are living up to their reputation in all parts of the country.

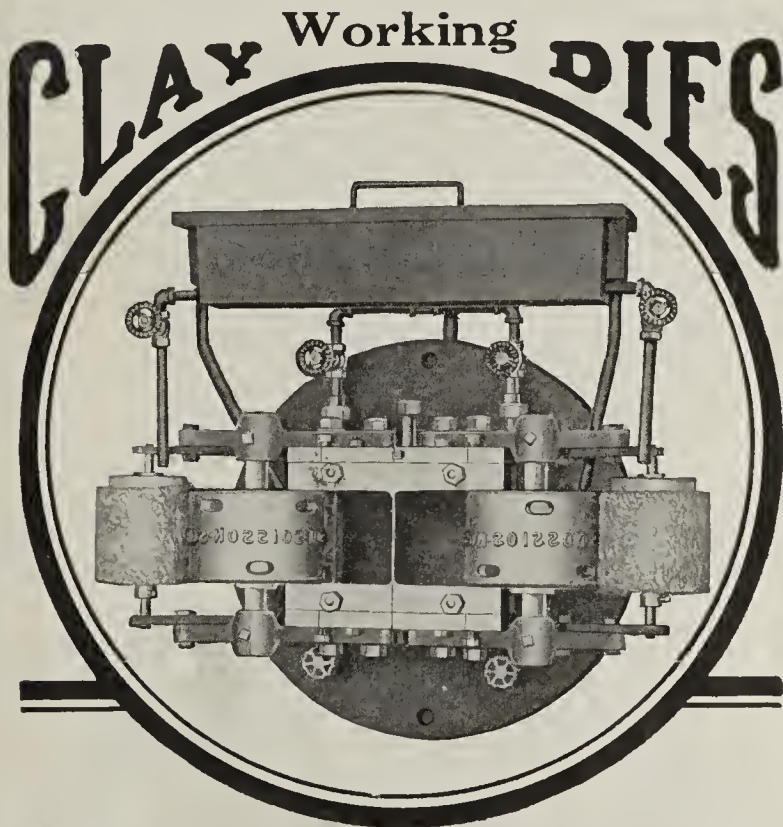
The Caldwell Steel Tank is like our other products in that it reflects all the excellence of character that such experience produces. You can rely upon it for unusual performance.

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Incorporated
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TANKS
AND
TOWERS



Eliminate Repressing

With the Louisville Clay Working Dies you can eliminate repressing and the loss of time and labor which is naturally attached to it.

Ask for Details

Louisville Machine Manufacturing Co.

LOUISVILLE, OHIO

The Gates Automatic Stoker Should Be On All Your Kilns!

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Brick and Clay Record
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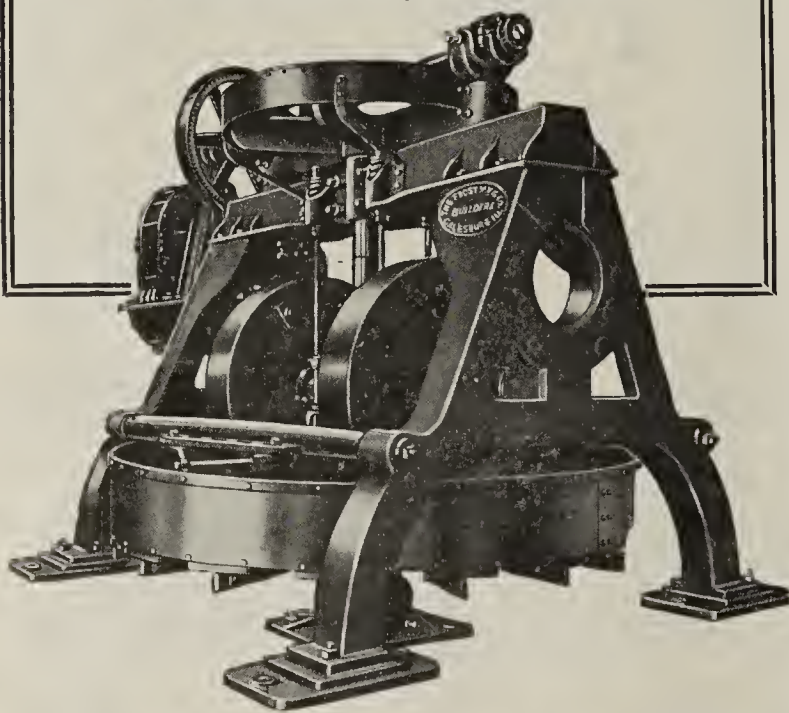
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BETTER QUALITY WARE

That is the result when Frost
Dry Pans are put on the job.

THE FROST MFG. CO.
GALESBURG, ILLINOIS



QUALITY ECONOMY SERVICE

THE BUILDING SITUATION

(Continued from page 471.)

and notably, in residence work. At Newark, the month showed an advance of \$512,000 over the corresponding period of a year ago, the figures standing at \$2,151,000 and \$1,639,000, respectively; with four months of the year still to come, it promises to be one of record-breaking proportions. At Orange, the monthly total rose to \$120,000, while South Orange produced a total of \$542,000 in August, a new record figure for this section. Trenton and points in South Jersey show a corresponding advance for this period, while at the shore resorts, construction now in progress will continue well into the late fall.

Philadelphia

All construction figures for the month of August were broken during the 1922 period at Philadelphia, which rounded out a total of about \$10,950,000, in operations of all kinds; this is \$400,000 in advance of the July figures, which were the best for that month ever recorded at the local building bureau. From present indications, it is estimated that 1922 construction in the city for the entire twelve months will exceed \$100,000,000.

Philadelphia Prices

Virtually all commodities entering into building construction in the Philadelphia section, are on the upturn, with the exception of common brick, where prices are static, according to reports gathered. Fancy grades of brick have risen in price slightly recently. Brick manufacturers say there is little likelihood of prices being reduced, plants generally being worked to capacity.

Increased prices for coal, and in some cases wage increases, have had a tendency to make wholesale prices of brick firm. Prices are quoted, plant delivery, as follows: Salmon \$13.50; hard \$17 to \$18; straight hard \$19 to \$20.

Face brick for carload lot delivery at site of operation, are quoted: smooth, reds, buffs, and grays, \$32 to \$50; Colonials \$28 and \$32; tapestries, reds buffs, and grays, \$44 to \$50; rough texture brick, other than tapestries \$35 to \$45; double faced brick, tapestry finish \$58 to \$60; enameled brick \$115 to \$140; paving brick \$36; paving block \$52; packing house brick \$46 to \$48; and hollow brick \$26.

Baltimore

Construction work at Baltimore, Md., is progressing at an active pace, with brick dwellings and apartments a feature of the activities. Weekly permits are now running from 300 to 350 for all classes of operations, with totals approximating from \$600,000 to \$800,000. Factory operations are showing an increase, with large work projected at Sparrows Point, Curtis Bay, Woodberry and other industrial sections.

Smaller cities in Maryland, including Frostburg, Elkton, Chesapeake City, Hagerstown and Havre de Grace, are concluding an active summer building season, with records for operations at a new high point. Residence work has easily been the leader, and many hundreds of thousands of dollars have been directed to this end.

Chicago

Clay products manufacturers in the vicinity of the city are still finding Chicago a market which will absorb practically all that they can produce. Construction figures are considerably over those of last year and altho there has been the usual seasonal drop September, when the totals have been compiled, will show a considerable gain over the same month in 1920. The first 15 days for September brought the totals to approximately \$5,000,000.

The work of the Citizens' Committee to Enforce the Landis Award is making itself felt with an ever increasing force. On

September 21, 21,075 Landis Award mechanics had been placed since the bureau began operations. The value of the Landis Award work under construction on that date as shown by the committee's reports, was over \$87,000,000.

Milwaukee

October of this year will show the greatest building boom ever experienced in Milwaukee during these months, William D. Harper, Milwaukee building inspector, predicted recently. Milwaukee has experienced the greatest building boom in her history. It was generally agreed that when the 1921 building figures reached the \$25,000,000 mark it would be something to overcome. This year to date however is already \$7,000,000 in excess of the same period in 1921. From January 1 to this date, 22,744 permits valued at \$21,459,343 were issued. For the same period last year the figures were 20,468 permits, value, \$15,499,529.

Louisville

Some building in Louisville, Ky., had been held up more or less, due to the shortage of cars, especially out in the state, but now things are getting back to something like normal, and the situation looks much better. Building permits for September are expected to run over \$1,000,000 again.

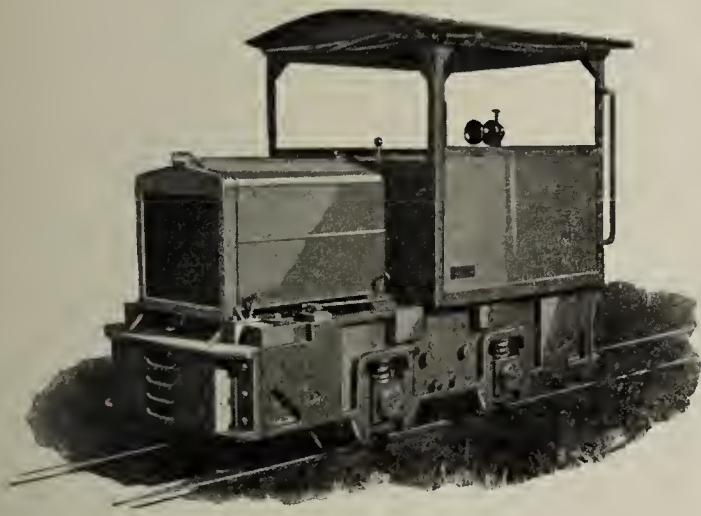
Coal is scarce and high priced, and in a discussion of this condition brick men said that they do not want to advance prices of brick, feeling that it might retard a fine building movement, but that they can't continue to pay such prices for fuel, and make money on plant production.

Machinery and Equipment

Descriptions of Machinery and Accessories and Detailed Announcements That Our Advertisers Believe Will Interest Our Readers

HAULAGE WITH FOUR SPEEDS IN EITHER DIRECTION

The increasing demands for improvements in the transportation of clay and clay products has led the George D. Whitcomb Co. of Rochelle, Ill., to manufacture a new type of gasoline locomotive. This locomotive is equipped with



A Whitcomb Gasoline Locomotive.

the well known engine made by the Wisconsin Motor Manufacturing Co., with overhead valve motor and removable radiator core. It is equipped with four speeds in either direction, rated at 3, 6, 9 and 12 miles per hour. The cab is high and roomy, allowing clear vision in all directions

NO 132



No. 132
Round heel shelf bucket—especially adapted for handling damp materials.



No. 131
Square heel shelf bucket—also adapted for handling mud, ore, coal, etc.



No. 1124
Straight trough front—pours its load instead of throwing it.

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ELEVATOR BUCKETS

When one make of elevator bucket has been the undisputed leader in its field for half a century—there can be no question but that it is the best.

Salem Buckets are used by the most careful equipment buyers. They are selected because of their service.

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Rugged Construction

The One Man Excavator has that **RUGGED CONSTRUCTION** which makes possible continuous hard usage under all conditions. Take for instance the digging of hard shale at the Coen Brick & Tile Works, Homestead, Pa.

The One Man Excavator will help you reduce costs this year. Ask about it.

Furnished with traction wheel or caterpillar tread, gasoline or electric power.

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BAY CITY, MICHIGAN

20 YEARS OLD



TWENTY years ago a large terra cotta company installed their first Goodman Electric Locomotive. This locomotive is still in continuous daily service.

The owners state that they have not a machine in their plant that has given them such returns for the investment as have their Goodman Electric Locomotives.

Will your next locomotive be a Goodman Electric?

Write today for catalog. We will send with it a data sheet which you may fill out and return to us for our use in determining just what we can supply to meet your exact requirements.

Ask for Catalog 220

Goodman Manufacturing Co.

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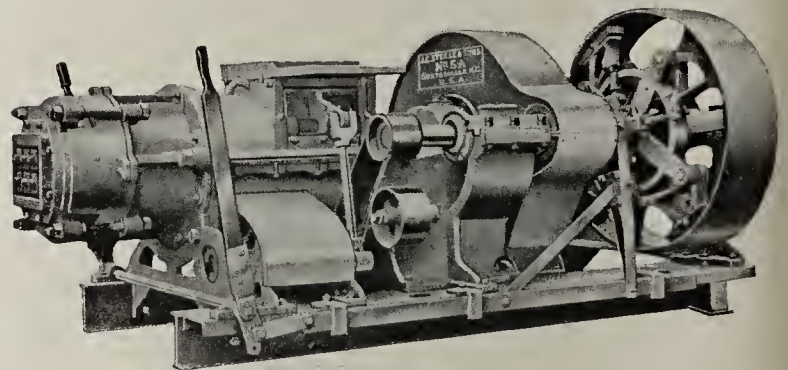
at all times. This feature will appeal to many plants because of the difficulty and danger often encountered in coupling up a string of cars in the pit.

The Whitcomb Co. started manufacturing gasoline locomotives in 1904, so that the new type represents the experience gained thru 18 years of successful manufacture of this equipment. The Whitcomb locomotives are manufactured in all sizes from two to 25 tons on the drive wheels, and in gages varying from 18 to 60 inches. In addition to the main office at Rochelle, Ill., they maintain 15 district sales offices thruout the country, equipped to give the best engineering advice on haulage problems for clay products manufacturers.

✱ ✱ ✱

NEW MACHINE RESULT OF 33 YEARS' EXPERIENCE

J. C. Steele & Sons of Statesville, N. C., have just put on the market a new stiff mud auger machine, which contains some original and attractive features. It is designed to manufacture from 4,000 to 9,000 brick or nine to 15 tons of hollow tile per hour, depending upon the material used and the speed at which driven. It is mounted on heavy I-beam channels, so that it is practically a complete unit. The machine can be taken apart without elevating any piece. The floor space required is 12 feet 6 inches by 6 feet 4 inches. The speed of the friction clutch pulley can be designed anywhere from 125 to 250 r. p. m. and the horse power



New J. C. Steele & Sons Stiff Mud Auger Machine.

required varies from 40 to 75. One of the big advantages is that the thrust bearing of the main shaft is in front of the main gear, and the pressure is carried thru large bolts direct and not thru a frame around the gears. This reduces the wear on the main gear. All gears have cut teeth and run in an oil bath. This machine is the result of 33 years of experience by the Steele company, and is designed on the lines of their No. 6 machine, which has proven satisfactory and dependable for the last ten years.

✱ ✱ ✱

WILL TAKE MOVIES OF SOUTHERN PLANTS

The brick and clay products industries will be one of the keynote industries of the Southeast to be advertised in foreign markets by the medium of motion pictures, according to an announcement recently by B. C. Getsinger, Atlanta district manager for the Bureau of Foreign and Domestic Commerce.

Motion pictures showing in an educational way how brick is manufactured from the raw material to the finished product will be made in some of the leading southeastern plants, and distributed for exhibition purposes in foreign lands under the direction of the bureau. All of the important southern industries are to be filmed in this manner, and it is believed by manufacturers that the plan will result in bringing about still further expansion of the export business which is enjoyed by the district.

Mr. Getsinger asks that any brick and clay manufacturers interested in the bureau's plan to get in touch with him at the Atlanta office in the Chamber of Commerce Bldg.

THE PHILOSOPHY OF TRADE ASSOCIATIONS

(Continued from page 477.)

not in politics, a problem in sociology and not in socialism—in short a problem of justice in human relationship, and all men's right to life, livelihood and progress.

Production

Every element which enters into the production and the marketing of the product of industry is the concern of the trade association. Capital, property, labor, production, the product, all are of vital consideration.

In its relation to the market and the public a strictly modern phase of economic principle compels attention. Credit is the life blood of commerce. The trade association delves into credit matters for the protection of its members. This right is conceded by law. But the principle of credit is deeper than the financial concern of the seller. A man must pay his bills. This is the legal and moral obligation of the buyer. But the obligation of both buyer and seller does not stop there. If the buyer does not make full return for value received, the amount thus lost must be made up if the business or industry is to continue. Therefore, the amount of the loss is considered as part of the cost of the product, to those who do pay and meet their obligations on the square. This is common but it is manifestly unfair. It emphatically penalizes honesty; grants to the crook, the shyster and the dead beat a reward for dishonesty, and the public pays the bill.

Broaden Out the Field

"Ignorant competition," says Mr. Hurley, "is most dangerous to the development and success of our country."

Whatever promotes the welfare of industry and the welfare of that broad group of people, called the public, is bound to react favorably upon the individual concern. The steady welfare of industry is the real welfare of the public. The ultimate consumer is the constant beneficiary of the trade association. Eliminate ignorant and disastrous competition thru education. Eliminate bad credits, fraudulent selling, dishonest advertising, shrewd and tricky methods, misrepresentation and waste, and give business a chance to be on the square with itself and fair with the public. Take away the barriers of tradition and prejudice and allow the trade association, acting in the open, to assist statesmen by acquainting them with the exact facts and conditions of industry and thus protect business and industry from the machinations and strategy of the professional political manipulator.

Where the Ice Begins to Get Thin

With the perfection of the trade association and the development of its efficiency comes a wealth of influence and a taste of power. From the field of protection, to the field of development the trade association is passing today. There is a field ahead—the field of aggression—the battle ground of the ages and the Waterloo of arrogant selfish interest and the oppressor.

Few people and few institutions can weather a great and long continued period of success and prosperity. Having great influence and power men and institutions become accustomed to command. They revel in it. They think themselves superior beings—superior to law and ethics. Just in proportion as they proudly lay stress on their "superiority" do they decrease the possibility of it ever being an established fact. Such is the tendency of the unrestricted organization of labor, trade, class or industry. It seeks to eliminate abuses, to resist outside pressure and to develop itself to its fullest possibility. Then, if it seeks to exercise its fullest power and to dictate its will, it becomes arbitrary. It becomes the arrogant despot. It rules with a rod of iron. It demands



The Brickmaker's Friend

It would be a difficult matter to find a more fitting name to apply to Standard Ball-bearing Roller Brick Conveyors.

These sectional, untiring, ever ready conveyors have been tried and never found wanting in times of need.

Unlike the usual portable power driven mechanical contrivances, they never endeavor to shirk a day's or even a portion of a day's work by pleading, "out of order."

Operated by a perpetual power, GRAVITY, the sensitive ball-bearing rollers respond instantly and freely to the pressure of the load, and riding friction free, brick and all clay products are transported from car to pile or vice versa.

Our representative in your territory will gladly call and show you how effectively a few sections of these time- and labor-saving conveyors will operate in your yard.

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The Master Workman has a Master Mind—he knows perfectly his own merit, and in order to increase his knowledge, he studies the methods of other men—in the only way that he can—in books. If you would be master of your work you must read and know what others know.

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Select the books that you want the most, and we'll send them to you postpaid upon receipt of price, but we can't send any books on approval. All foreign books subject to 15 per cent. import duty.

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Brick and Clay Record
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special privilege; it demands class legislation, monopoly, political power, immunity from the penalties of civil law.

The sober judgment of an enlightened democratic public condemns and resists class privilege and domination, regardless of whether it favors labor, the farm, a profession or an industry.

Where Law and Ethics Agree

There is a great difference between what individuals as individuals may do and what they may agree to do together. The law says agreement among men for special efforts is conspiracy, if these efforts affect adversely individuals, business or the public. Economically, also, an organization must proceed with care that there be no attempt, or intent, to impose, either directly or indirectly, the weight or power of the organized whole on the seller, or the buyer, to influence any transaction. Unfair buying is closely related to and very often is the real cause of unfair selling. However, price fixing for buying or selling is economically wrong.

Goal of Trade Association Is Peace

The great goal of the Trade Association is peace and progress in industry. Peace, which touches both the employer and the employe depends very largely upon three essentials—contentment, cooperation and production. Industrial progress means profitably increasing the production and distribution of a constantly improving article of usefulness. To this end the trade association is teaching the business man to *think in terms of his industry and to realize that general prosperity is essential to his own success.*

The trade association must assume the tasks which are admittedly too large for any one manufacturer to handle. The trade association is only the machinery of cooperation—a means to an end; and that end is the just principle back of civilized government—government of the people, by the people and for the people—government with the consent and cooperation of the governed. The trust is imperialism. The trade association is democracy. In democracy individuality and freedom of self expression and initiative are still religiously retained. They are fundamental.

The trade association is the only method yet devised whereby to inject fundamental democracy into business. The problems of industry are worked out to best advantage in the trade association, where the training and education of democracy broadens the common ground of understanding.

The Swing from Quantity to Quality

Cooperation makes for maximum efficiency in quantitative production and is an incentive to efficiency in qualitative production. Quantitative production is the effort when demand exceeds supply. Qualitative production is the effort when the supply exceeds the demand.

Supply and demand, the great fundamentals of business, alternate with seasons, with business cycles, with discovery and invention, and with the ebb and flow of human confidence. But even as the pendulum swings from demand to supply, so human thought swings from the extensive, which gives us the quantity, to the intensive which gives us quality. The extensive encourages rapid growth and closely knit organization. The intensive tests business for its weak points and gives us stabilization of industry and standardization of products.

The extensive broadcasts the field with wholesale and indiscriminate production. The intensive weeds out the weak and unhealthy growths giving to the individual an opportunity to emerge from the turbulent mass, and thru quality, to impress his personality upon his work.

Good and Bad Times for an Association

It is easy for a trade association to operate when the pendulum has swung to the extreme of the extensive and

demand exceeds supply. But the association is needed when the pendulum has swung to the opposite extreme and supply exceeds demand. There are few hard problems when demand exceeds supply. But it is another story when the demand falls off. So long as the ship of commerce steams along on an even keel it isn't hard for the ordinary man to remain anchored to principles of just dealing, honesty of purpose and of act. It is when the storms of shifting conditions and financial adjustment cause the ship of commerce to careen, to stand on its beam ends, to list and to roll, that the business man tends to slip from his base of cooperative action, and cling to anything, that looks like immediate protection. Never mind what happens to the others or to the ship itself. Self-preservation is the first law of *primitive* human nature. *Anybody's umbrella in a storm.*

Individualism and Cooperation

In time of danger the savage separates himself from his fellows and fights alone, because he is a savage.

Discipline and organization are not obviously fundamental in time of peace. But in time of trouble, the two things most needed are discipline and organization. In them is safety. In time of commercial readjustment, protection for the individual is in the discipline which makes for rigid adherence to fair practice codes of honor and honesty. Confidence is not an easy thing to maintain in the face of changing conditions, and turbulent business thinking. But rigid adherence to the principles of association which maintain justice to all, can steady the ship so it will ride out the storm.

Impossible to Go Wrong Doing Right

No association ever went wrong and turned from the path of rectitude because of honest effort at justice in human relations. Just as truthfully may it be said that no questionable, or unethical practice ever developed in a trade association that did not have its origin and practical demonstration in the business methods of individual members. An aim of the trade association is to maintain a code of ethics and honor in business relations. Honesty is the best policy. It is also the best economy and, like truth, is a labor saving device.

Democracy has been called ethical like mindedness. "Scientifically, democracy is a form of government, or a form of the state, or a form of society, or a combination of all three."

Trade Association and the Government

In the light of the above definition, the trade association is the most typically democratic method, thus far devised, for operation under a democratic system of government. It supplies the logical means thru which business and the government may and can cooperate. This was true, in time of war, in those countries where the association has great attitude of legalized operation, and in this country as well. This cooperation in time of war is but an example of what can be done in times of peace.

The Basis of Confidence

Secrecy is fatal to confidence. Secrecy is also fatal to cooperation between trade associations and the government. Open diplomacy is the only guaranty of success in the trade association. Open and square dealing between business and the government is as economically necessary as is government itself. Our government is a partner in every business enterprise which operates under the protection of the American Flag and the principles for which it stands. Government, to be efficient must know the facts of business, and it should not be required to investigate when intelligent action in international business is urgent. The same rule applies when commercial matters of national concern demand attention.



OLD methods of drying are slow, space-greedy and wasteful—a drag-chain to production that must now be tuned to modern needs.

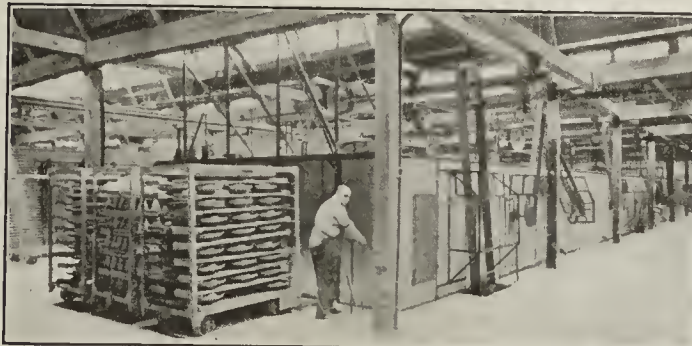
Leaders in the manufacture of all burned clay products have long since recognized the present-day necessity for efficient drying machinery and have effectively solved the problem by installing "Proctor" Dryers.

"Proctor" Dryers have made tremendous improvement over old systems—saving time, space and labor; giving a dependable flow of ware to the kilns; greatly increasing the percentage of perfect quality ware.

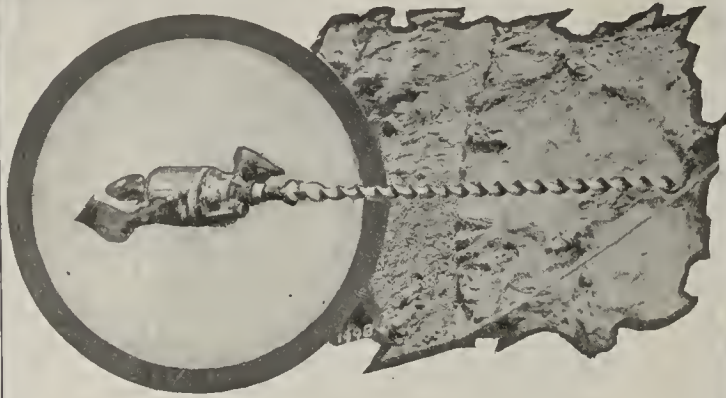
Different types of "Proctor" Dryers are giving wonderful results in drying Electrical Porcelain, Pottery, Sanitary Ware, Tile, Refractories, Face Brick and all other clay products—results that, on investigation, will prove the advantages of taking your drying problems to the oldest and largest organization of drying machinery specialists.



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PHILADELPHIA



Tunnel-Truck Humidity Dryer for Electrical Porcelain, Saggers, Chemical Stoneware, Tile, etc.



What are Your Shot-Hole Drilling Costs?

DO you know that Little Giant Electric Coal Drills drill shot holes fourteen times faster than is possible with a hand auger?

Through plastic, semi-plastic and flint clay, the Little Giant Electric Coal Drill illustrated, serving the A. P. Green Fire Brick Company, Mexico, Mo., drilled fourteen four-foot shot holes while one similar hole was drilled the hand-auger way.

Apply the speed and economy of Little Giants in your plant. Available for operation on D. C., or single, two or three-phase A. C. Address nearest Branch for trial drill.

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LITTLE
Coal



GIANT
Drills

Business, too, has a right to the full confidence and cooperation of the government for the sake of the commonweal. A democratic form of government implies, requires and promotes cooperation among its component parts, on the basis of open and square dealing and full and accurate information.

What Organized Effort Accomplishes

Organized business effort, in the scheme of economics and sociology, is therefore a means to the betterment of those conditions under which humanity labors for life and livelihood. Its function is the elimination of injustice, fraud, misrepresentation, greed, oppression, domination, untruthfulness and dishonesty in the economics of human relations and the substitution of justice, fairness, truth, honesty and the Golden Rule in their stead. The means to this end is practical and operative business democracy.

Scope of Economics

Economics does not stop with prosaic business. It reaches into the realm of civics and bears a vital relationship to government, and to general conditions of life and living. Even as government errs when it interferes with the rights and freedom of men in their honest and just relationship, so does any organization of men err when it interferes with honest and just rights and with the progress of human efforts and ideals. The field of the trade association is the field of economic endeavor. The association touches every phase of that endeavor. Its applied purpose determines whether it is a compelling force for the permanent good of humanity or a stumbling block to civilization. Business is the mobilization of economic elements of production and exchange. Insofar as economics, in its practical operation, is inextricably linked with sociology, so must that mobilization of economic elements serve the permanent good of humanity.

Business Man Citizen of the World

As barter and trade reached beyond the political confines of the ancient community, so the trader became a citizen of a larger country. Today, the business man is no longer a citizen only of the country in which he lives. He is a citizen of the world. He no longer depends upon the local, regional or national economic field for operation. His field is the world, and the economics of the world has a vital influence upon his prosperity and success. With this broadening of his interests, with the enlargement of his field of activity and with the growth of his power, there is a corresponding increase in his responsibility as a man.

Cooperation Law of Humanity

Cooperation is an eternal law of humanity. It has swept down thru history with the resistless force of the changing seasons. It has done more than any other one factor to elevate the human race from barbarism to its present status. It is as deep in its essence as eternal truth and as broad in its operation as human intelligence. It seeks justice and honesty in human relations and enforces responsibility. It is the spirit of the Magna Carta. It is the essence of our Declaration of Independence. It is the substance of democracy. It is the fabric of civilization.

The trade association is the principle of cooperative progress in actual operation. It is a union of group purpose, group endeavor and group responsibility. It is a permanent entity in the great system of things fundamental, and is responsible to itself; responsible to government; responsible to humanity. As it serves itself it must serve humanity, for the decree of the Grand Architect of the Universe, in its operation, is the Golden Rule in every phase of our thinking, and, in its purpose, "On Earth Peace, Good Will Toward Men."

Among Our Advertisers

Details Concerning New Models, Changes in Personnel, News Matters, etc., That Our Advertisers Believe Will Interest Our Readers

NEW DIRECTORS FOR QUAKER CITY RUBBER CO.

For the purpose of expanding the business of the Quaker City Rubber Co., the directors elected James M. Dixon and Norman E. Oliver, as directors of the company. Mr. Oliver was also elected as one of the vice-presidents.

Mr. Dixon is president of the Tobacco Products Company and director of several other large corporations in the United States. Mr. Oliver was late vice-president of the B. F. Goodrich Company, and has had long experience and a good record of achievements in the rubber business.

The Quaker City Rubber Co. has been strengthened materially by their new connections, and undoubtedly the new blood injected into the organization will have very beneficial results.

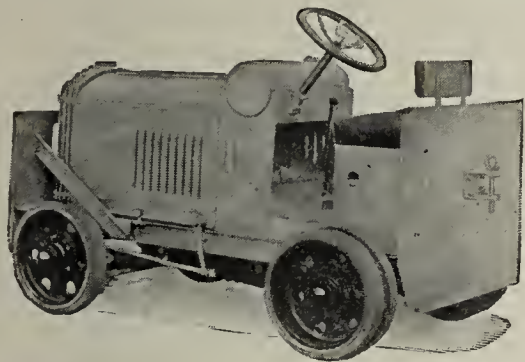


MAKING MONEY BY SAVING IT

Industrial tractors have been put on the "pay roll" of many concerns because they have demonstrated their ability to eliminate man-power and horse-power. The initial cost of these tractors is soon returned in the saving of wages of men and the cost of using horses.

Actual figures, obtained from users of Towmotors, show an average saving to the payroll sufficient to net a premium of over 300 per cent. annually on the investment.

The Towmotor, shown in the accompanying illustration, is guaranteed to perform the work for which it is designed. It is a rugged, all steel machine able to withstand much hard



The Towmotor

use and abuse. It is operated with gasoline and can be used twenty-four hours every day in the week.

The tractor can be equipped with a detachable dump body and is very useful for hauling coal from pile to kilns or for handling common brick. It can also be used to haul trailers by coupling, or can push without coupling. The Towmotor is manufactured by The Towmotor Company, Cleveland, Ohio.



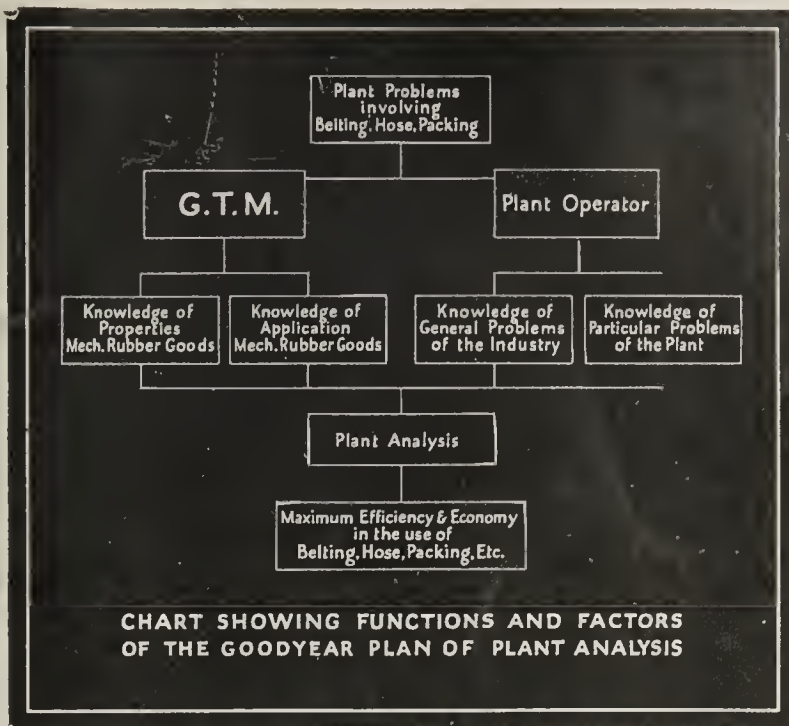
LOCOMOTIVE FOR LIGHT HAULAGE

A compact gasoline locomotive for light haulage service has been put on the market by the Atlas Car and Mfg. Co., Cleveland, Ohio, built to withstand severe service.

The motor is of the rugged tractor type, with all parts enclosed and protected, but still easily accessible. The intake air is washed by passing through a water clarifier which removes the dust. The lubricating oil at one point in the central reservoir reaches all parts of the motor and transmission.

Just behind the flywheel is the clutch, placed in the usual manner, and the propeller shaft mounts at its extremity a bevel pinion which is in constant mesh with two bevel gears, causing the bevel gears to rotate in opposite directions. Forward or reverse motion is obtained by engaging either one of these bevel gears by means of a sliding gear clutch. A neutral position is also provided. The drive from the bevel gear shaft is by a spur gear reduction to the jackshaft on the extremities of which are mounted sprockets which drive the axles through the roller chains.

The power plant is mounted in a standard locomotive frame such as are used in all Atlas electric locomotives in mining



Copyright 1922, by The Goodyear Tire & Rubber Co., Inc.

Plant Analysis Service— and the G. T. M.

Look at this chart. It pictures, in the language of the plant superintendent and the industrial engineer, the place occupied by the G. T. M.—Goodyear Technical Man—with relation to your belting, hose and packing problems.

It identifies the G. T. M. for what he is, the tested link in the chain of service connecting your need for efficient plant operation, and your knowledge of the special working conditions of your plant, with the Goodyear Plan of Plant Analysis and the products Goodyear makes for industrial use.

The G. T. M. is an expert in his line. He knows the properties of good mechanical goods. He is trained in the science of their specification and application. His work takes him into many plants, in many industries, so that he is familiar with most transmission and conveying problems, and is a practical authority on many of them.

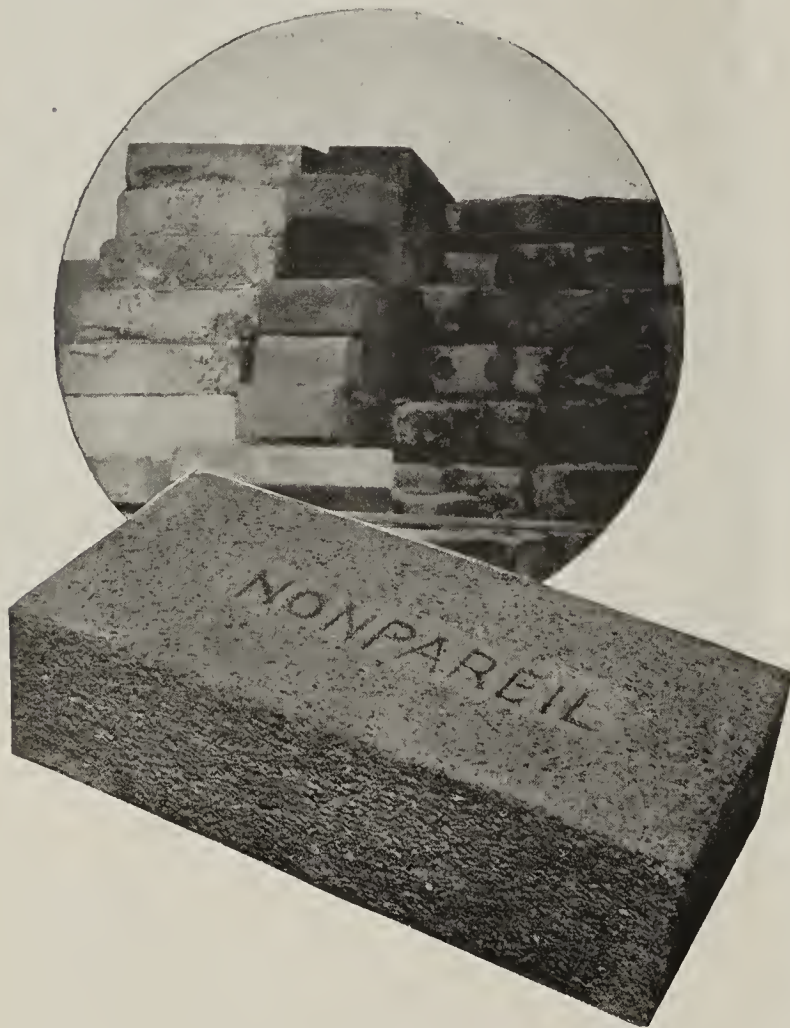
When he comes to your plant, he comes as a friendly analyst of your operating problems, your troubles, maybe. He doesn't pretend to know it all. He takes the advice of your superintendent and engineer. He gives close attention to their experienced knowledge of your particular working conditions.

His sole object is to fit what he knows about belting, hose or packing to the demonstrated conditions of service in your plant. If he can find out what you need, and Goodyear can furnish it, he will recommend it to you, and after its installation he will follow it up with a sincere service.

Isn't it logical that a belt, or other equipment, that is constructed right in the first place, and then is specified intelligently to the work it is to do, is much more likely than any other product is to serve you longer and better, with freedom from trouble, and return to you the full value of its utmost efficiency and economy? The Goodyear Analysis Plan is based on that reasoning, and the G. T. M.'s work is to insure that you get the equipment that will serve you longest and best.

There is a G. T. M. in your neighborhood. Call on him for an analysis of your mechanical goods problem, whether it involves a single unit or an entire plant, a conveyor or a transmission, a hose or a packing equipment. For further information about the G. T. M., and his work, or the kind of service Goodyear products give in your particular industry, write to Goodyear, Akron, Ohio, or Los Angeles, California.

GOOD YEAR



“Like a Brick Wall”

WE say, “Like a brick wall,” meaning an impassable barrier. But a course of Nonpareil Insulating Brick in the settings of kilns, dryers, boilers, etc. shuts off the heat lost by conduction and radiation *better* than a wall of ordinary brick. Right there it stops and very little of it gets any farther.

A Nonpareil “brick wall” will save fuel for you—as much as 10% to 15% in certain types of equipment. It will maintain more uniform heat inside the kiln and give you better control of temperatures. It will shorten heating time and equalize cooling, and will produce more evenly burned ware with fewer rejects.

And Nonpareil Brick make a *permanent* insulation—nothing to come loose or flake off, or settle. They are built into the construction.

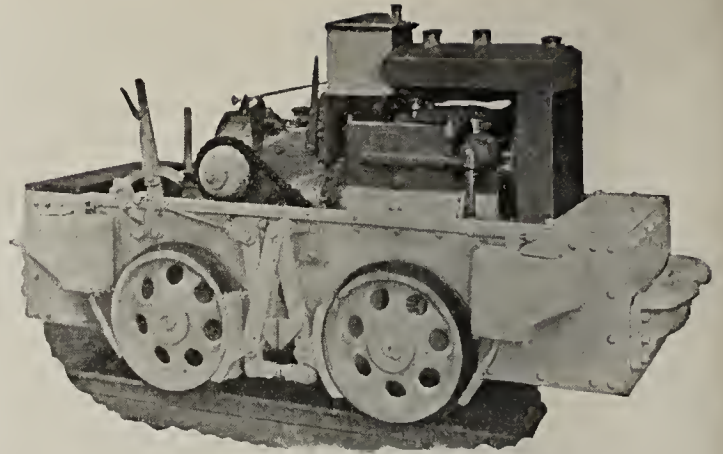
Write for a sample and a copy of the 72 - page book, “Nonpareil Insulating Brick,” which are sent free on request

Armstrong Cork & Insulation Company

149 Twenty-fourth Street, Pittsburgh, Pa.

Nonpareil Insulating Brick

For Kilns, Boiler Settings, etc.



Gasoline Locomotive for Light Haulage

and industrial service. Complete locomotive equipment is provided.

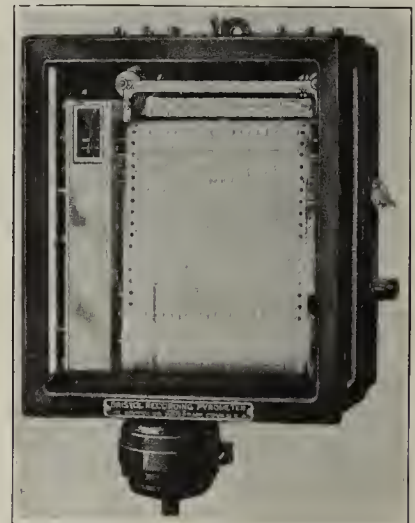
Speed changes are obtained by throttle control similar in operation to steam locomotive. All control levers are conveniently grouped in the operator's compartment.



COMPLETE INFORMATION ON PYROMETERS

An exhaustive treatise and catalog on every type of pyrometer installation, equipment and appliances has just been issued by The Bristol Co., of Waterbury, Conn. This company has been very successful in the clay products industry for years and the new catalog, numbered 1401 and containing 68 pages, will assist in giving further information and details for manufacturers in our industry.

Round or strip charts can be supplied for various ranges of heat to use in kilns, and also for various intervals of time, so that the variations in temperature can be studied in minutest detail or in the long trend. The strip charts can be



Bristol Model 425 Shown in New Catalog

equipped to record the heat of six kilns simultaneously by using different colors.

All of the information in this book should be studied by our readers. A copy can be obtained on application to The Bristol Co.



Two new branch offices were opened September 1, by The Brown Instrument Co., one to serve the New England states and the other the Southern states.

George Goodman is in charge of the New England branch, located at 185 Devonshire St., Boston, Mass., and Charles L. Saunders is in charge of the Southern branch. His office is 619 Brown-Marx Bldg., Birmingham, Ala.

The many friends and users of Brown pyrometers, recording thermometers, pressure gauges and tachometers in these two sections, and the many concerns seeking solution of temperature, pressure, or speed problems, will appreciate these local offices completely equipped for sales and service.

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Leading Clay Journal of the World.

BRICK *and* CLAY RECORD

Established 1892. Now in its thirtieth year.

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Subscriptions: One Year (26 Numbers), United States, \$3.00; Foreign, \$4.00;
Single Copies, 25 Cents.

Published Every Other Tuesday by

INDUSTRIAL PUBLICATIONS, Inc., 407 S. Dearborn St., Chicago.

Telephone Harrison 9462

NEW YORK

CLEVELAND

KANSAS CITY

Chicago, October 17, 1922

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Serving Two Classes

Apart from the fact that the industrial press does render a service it must not be forgotten how this service is made possible. Industrial publishing is primarily a business. It produces a commodity which must sell at a profit like any other successful business. To do this permanently it must have well managed business activities. Like other businesses, it must cultivate a group of customers who keep on buying because it is supplying something that they need.

The industrial press has two distinct classes of customers, the subscriber and the advertiser. The people who do the most buying from the publishers in terms of money value are the advertisers. On the average, 90 per cent. of the income of an industrial journal comes thru the sale of space to advertisers.

An industrial journal whose subscription price is \$3 a year often costs as much as \$40 per subscription per year to prepare, print and mail. To charge for a paper on this basis would be to limit the number of people it could serve and to curtail its influence in industry. It is from his advertisers that the publisher gets the necessary additional receipts to meet his costs and yield his profits.

Aside from the fact that the advertising pages are a source of income they are of considerable value to the subscriber. One prominent publisher was surprised a year ago when he made a canvass of a

large section of his subscribers to find out what departments of the paper interested them most. He was surprised at the great number who said that they found the advertising pages most interesting, as well as most useful, in their business. One subscriber said that the advertisements constituted a valuable buyers' directory. Others called attention to the fact that they got many suggestions of new equipment and improved methods from the advertising pages.

So it is right to recognize the advertising as a part of the service of the industrial press—not as something extraneous lugged in for purely commercial purposes. Most readers are aware of the value of advertising pages, not only because they give ideas of improved methods, furnish a buyers' guide or directory, and enable the publication to be distributed at a more reasonable price to them, but they realize also that the consistent advertiser is something more than a fly-by-night concern. It enables subscribers to have faith in those firms who advertise in their trade paper. Moreover, advertising in the particular field that the reader is interested in assures him of the direct interest that the advertiser has in that field. It eliminates the probability of its being only a side issue for the advertiser, and is an almost certain indication that the advertiser intends to give real service to that class of business served by the publication he advertises in.

The EDITOR'S CORNER

Self Preservation of Industry Enters Into Coal Problem

THE CLAY INDUSTRY appears to be in an excellent economic position. Prospects for a good demand for clay ware during 1923 are bright. Apparently most clay manufacturers are entering this winter with much less stock of burned ware on hand than ordinarily. This is substantiated by the report of the Common Brick Manufacturers' Association as of October 1, which points out that orders on hand exceed the supply of brick by many millions.

Ordinarily, with stocks very low and prospects for very good demand in sight, fundamental conditions would seem sound. However, is this the case in the clay industry? Perhaps it would be if it were not for the uncertainties which exist in the nation's fuel supply.

The big demand for clay products which is anticipated for next spring will come immediately after the period during which fuel consumption is greatest. There is much reason to be worried lest the reserves that may be built up before cold weather comes, be completely exhausted by the time the clay industry comes into the market for coal next spring.

It has been the practice of the clay products industry to shut down whenever there was no demand, and to open up again when stocks were low enough to warrant fair prices. This situation is unfortunate. The tendency further has been too much toward waiting for consumers to come to the factory or sales offices with their orders, rather than going out and creating business. As a direct result of this laxity, the industry is less than a half billion dollar business, instead as it should be, a billion dollar industry.

People easily forget a product, especially if another similar product is continually before their attention. Years ago, automobile wheels were almost exclusively made of hickory wood. Today steel wheels are becoming increasingly popular.

Not so long ago, golfers laughed at the possibility of substituting hollow steel golf clubs in preference to hickory wood sticks. Now there are many golfers who have been educated to the use of the hollow steel, and would not consider going back to the use of a hickory club.

The substitution of American walnut for mahogany finishes in furniture, and countless other examples, could be given as evidence of the ease with which people can be weaned from one product to the use of another.

Plant shut-downs are costly. Interest, depreciation and administration expense continue during idleness. Especially would shut-downs be expensive at a time when there is a big need for material, and where substitutes would be used if the supply of the normally used products were not sufficient.

To prevent any such weaning away of consumers from the use of clay products to substitute materials, added consideration must be given to the fuel situation aside from the effect a suspension of operations would have upon earnings. Thus the possibilities for securing sufficient fuel should be considered in the light of the welfare of the clay industry as well as its effects on production costs and profits. It is not only a duty that the clay industry owes to the public to be prepared to supply sufficient ware for the demand, but it is also a matter of self-preservation of the industry.



Be Careful How You Raise Wages

DURING the third quarter of this year, there have been numerous increases in wages granted to employes in many industries. A glance thru the Wake of the News section of recent issues of Brick and Clay Record will show that several clay manufacturers have been forced to raise the wages of their employes.

There is a phase to this subject which at this particular time warrants consideration before other plants take definite action in granting wage increases. We are in a period when commodities are rising in price, and the pressure for wage boosts is strong. The situation is only a temporary one, however.

Like riding on the familiar gliding coaster in an amusement park, we have already gone down the initial big hill and are now ascending the crest of one of the minor hills. The ascent is a short one, and we will soon be going downward again.

In a similar way, economic conditions will soon be such that a decrease in wages will be in order. Thus the employer who raises wages now will

be obliged to reduce them in a short time. Later on, due to the fact that for a long period of years the general tendency of wages and prices is going to be downward, other reductions will be necessary. Employes are more sensitive to the fact that their wages have been reduced than to the amount of money they are earning. They count the reductions.

If you meet present wage demands by giving your employes a bonus, depending upon the cost of living changes, your increases will be smaller than the wage increase your employes would demand.

A good plan during the present wage emergency is to give bonuses to your employes without changing your wage basis. Then when conditions are such that a reduction in your labor costs is in order, reduce or eliminate the bonus. Thus the wage rate is not disturbed.

The psychological effect on the workers thru the use of the above means of regulating employes' earnings will be much better than raising or reducing base wage rates. It would simplify the problem of handling your labor a great deal.



Clay Plants Own Coal Mines?—Why Not?

Uncertainties in connection with adequate supplies and cost of coal have been distressing to the clay industry too frequently. Therefore, we venture a subject that has appeared in these columns before—that of cooperative buying.

One-third of the raw material tonnage used in clay plants is coal. Few plants would consider buying their clay. Why, then, not have control of the fuel supply?

Where other industries have been hampered in production by uncertainties and high cost of raw materials, they have sought control of those supplies. Examples are Ford, U. S. Steel Corporation, Chicago Tribune, and others.

Why cannot a group of clay manufacturers cooperate in the leasing or owning of a coal mine? Clay plants use most coal in summer when they take up the business slack which mines usually experience in that period. A mine could be operated steadily and thus be more profitable than the majority of coal mines which now operate only part of the time.



In the last analysis success in business depends upon the intelligence of the individual manufacturer. If he does not understand both the details and the broad aspects of the industry of which he is a part, he cannot expect to be successful.—Edward N. Hurley.



Labor unions are often criticized for restricting the output of their members, because this eventually raises the prices of all commodities. Any manufacturer who uses more human energy than necessary, is just as reprehensible.

Excavator Suitable for Medium Sized Plants Has Distinct Advantages

Solves Problem of Eliminating Hand Digging Without Expensive Installation and Operation Expense

A very efficient digging machine for small and moderate sized plants is the Keystone Excavator which is used at the Ochs & Frey Brick Co. at Allentown, Pa. It is what is called a ditcher type of excavator. Only one man, paid \$4.50 per day, is required for operation. The electric power costs \$2, oil and repairs \$1.50 per day. This makes a total cost of \$8 per day, exclusive of depreciation and obsolescence charges. On a basis of 35,000 brick per day, this is approximately 23 cents per thousand. Depreciation and obsolescence can be estimated at 8½ cents per thousand, so that the total cost of digging is in the neighborhood of 31½ cents per thousand.

This company hauls the clay from the excavator to the plant with three teams at a cost of \$6 each, or a total of \$18 per day. This adds about 50 cents per thousand to the cost of the clay delivered at the plant. The machine could dig clay for a larger production in which case the cost per thousand would be reduced.

The illustrations and captions explain the operation in detail.

A. J. Obert, manager of the plant, says that there are many advantages gained thru the use of this machine. It digs to a depth of 22 feet, and obtains a uniform and thoro mixture of every strata of clay in the bank. The machine and wagons are kept on top of the bank, avoiding the many difficulties caused by rain and water in the pit and also by the uneven bottom. An uneven bottom always causes expense, trouble and delay because it must be leveled for the passage of the machine and also for the wagons. Again a heavy rain or high water in the pit does not stop operations.



Dumping the Contents of Bucket Into Wagon. The Position of Bucket Insures Complete Emptying of Contents.



Bucket in Place for Starting to Dig. It Looks Like a Long Arm and Hand Ready to Pick Up the Clay.

ROOSEVELT SAYS:

"I have read the editorial which advocates members among those engaged in the clay industry paying no dividends in 1922. Many businesses pave the way to future fortune by foregoing dividends at times when it is more opportune to put money which would be used in paying dividends back into the property in the shape of plant improvements. I hardly feel that it would be wise to advocate an entire industry doing this. However, without specific knowledge as to the industry, the principle is one which is entirely governed by circumstances and would therefore be a problem for the individual owner to decide.

"As a constructive thought and as a word of caution, your idea is good, but reform movements have frequently been jeopardized by the use of drastic measures when a more moderate course would have served the same eventual purpose, and it is that which makes me hesitate to endorse in full an idea which is basically sound for some plants."

Franklin D. Roosevelt

Mr. Roosevelt does not believe that it is wise to advocate that the entire clay industry withhold dividends for 1922. With this opinion Brick and Clay Record is in absolute accord. It is realized, of course, that there are some plants that are now as modern as the newest ideas and equipment can make them and in such cases it would be folly not to pay well earned dividends. However, it is strongly advocated that if your plant is not operating efficiently now, if you are paying labor for work that could be done cheaper and better by machines, if you are using old-fashioned expensive methods, then take the money you have earned this year, and take all of it if necessary, and use it to bring your plant to a point of efficiency where you will be able to meet the lower prices which will be demanded by the public and by keener competition.

It is for this reason that the Brick and Clay Record Editorial advocated, "Pay no dividends in 1922! At least, not until you have had a careful analysis made of conditions on your plant, and have set aside a surplus that will enable you to do those things that will help you to join in the industry's necessary efforts to cut manufacturing costs."

This machine can pass over and not dig any clay of poor grade. If the machine were at the bottom of the pit this poor clay would have to be moved and thrown away at a direct loss.

The machine has three different digging attachments. The one shown in the illustrations, which is used most of the time,



Arrangement for Digging the Upper Strata of a Clay Deposit in Case the Lower Clay is Not Suitable for Use.

has what is a comparatively short arm to which is attached a drag bucket. There is also a bucket very much like the ones used on steam shovels and a long drag-line bucket which can be made to work at some distance, in fact in the middle of the pit.

Conveyors Cut Costs of Handling Brick 66 Per Cent.

Five Men Empty a Kiln of
100,000 Brick in Nine Hours

The labor required for emptying kilns of brick has been cut 66 per cent. by a series of Barber Greene belt conveyors at the plant of the Camp Brothers Co. of Mogadore, Ohio. They purchased four sections of belt of various lengths in May, 1921, and each section has handled approximately 15,-



View Showing Method of Loading. Brick Are Counted by Men.

000,000 brick per year since that time. In May, 1922, they added three conveyors of a little heavier material, in order to withstand better the heavy usage. This makes seven of these conveyors now in operation at the plant. Between 80,000 and 100,000 brick per day are produced by Camp Brothers Co., and all of the kilns are emptied with this equipment. Five men and one foreman are all the men required. This crew empties a kiln of 100,000 brick in nine hours. As shown in the illustration, the brick are dumped into open-top gondola cars, the brick falling off the belt. These are hard burned shale brick, and the breakage loss is very small—less than one per

REDUCE YOUR COST

cent. The men count the brick they handle, and the total is checked with the number set in the kiln. It is therefore impossible to have the count run over. If desired, a counter of the lever type could be mounted on the side of this kind of conveyor. A rule could be established that the brick be placed on the conveyor uniformly, that is four, five or any



General Arrangement of Conveyors Showing the Wheels That Permit Them to Be Moved and How the Brick Are Changed from One Conveyor to Another.

number wide. The counter could be placed so that one width of brick would register one on the counter. Multiplying by the standard number of brick in width, four or five or any number specified will give the number loaded.

Making Wet Plastic Clays Workable

Eastern Manufacturers Installing Crushing Machinery to Grind Bats and Dried Brick

Anyone who has worked with a Hudson River or Connecticut clay knows that winter operation with this kind of brick clay is made most difficult due to its wet condition. In fact, after a rainy spell the clays in these sections are



Crusher in Center of Picture, Rotary Screen in Upper Left Hand Corner.

very difficult to mold into brick account of their sloppy consistency.

To overcome this difficulty, some of the manufacturers of brick in the East are installing crushers to grind brickbats and dried brick. The ground material is then added to the

wet clay, and due to the high absorptive powers of the dry or burned clay, the consistency of the mixture is very much improved and better brick made.

The Jova Brick Co., Roseton, N. Y., have just installed a Williams pulverizer for this purpose, and are one of the first few Hudson River plants who have adopted this system of working wet, sloppy clays.

The Donnelley Brick Co., New Britain, Conn., have used a crusher for a long period, and the I. E. Stiles & Son plant at North Haven, Conn., have just installed a Champion crusher and a rotary screen for grinding and screening dried and burned clay.

Only certain sized material is desirable for mixing.

The use of ground bats or dried brick has been found an improvement over the use of sand or fine gravel for regulating the consistency of sloppy clay.

Simple Changes Permit Speeding Up of Soft Mud Brick Production

Converts 7-Mold into 8-Mold Machine—Increases Capacity with No Extra Equipment

The Jova Brick Co., Roseton, N. Y., claims to have been the first plant on the Hudson River to have installed an Autobrick machine. It was a seven-mold machine when installed. Most of the machines used for soft mud brick production on the Hudson River are five and six-mold machines.

It occurred to the superintendent and manager of the Jova Brick Co. that since the machine operated so well with seven molds, it might be possible to increase the capacity even more. Altho objections were raised to leave well enough alone, the experiment was made, and the same machine that formerly turned out seven brick is now turning out eight brick per mold.

Similarly, the Donnelley Brick Co. of New Britain, Conn., operated a soft mud brick machine at the rate of 19 six-brick molds per minute. During August they made a change by simply putting in a new clogg cutter on the bottom of the press. The change was a simple one and was made in but a few hours.

The result of this alteration is that now 17 seven-brick molds are made on the same machine each minute. This has speeded up production considerably, and enables the crew to turn out a day's work in much less time than formerly.

Roller Bearings on Line Shaft Give Thoro Satisfaction

SKF Type Used in Place of the Usual Babbitted Bearings, Reduce Friction

A big improvement has been made in line shafting construction by the Sheffield (Ia.) Brick & Tile Co. In place of the ordinary standard babbitt bearings, they use the SKF type of roller bearings. The line shaft is placed on heavy concrete pilasters which, together with the SKF bearings, reduce the friction and drives the plant with the minimum expense for power. The plant is electrically driven.

✱ ✱ ✱

Use the absolutely least possible human energy, because that is the most wasteful element in the manufacture of clay products.

INCREASED PROFITS

Excavator Makes Idle Seven Men, Four Horses and Carts

Provides Clay for 48,000 Brick Daily with Only Five Men

Various degrees of success and failure have been registered on clay plants using the drag-line excavator. But in this the excavator differs very little from other equipment. The large variety of problems which confront the producer of clay ware cannot be answered by any one particular type

one who believes thoroly in the value of the drag-line. His plant manufactures 48,000 brick per day by the soft mud process, and uses a surface clay typical of the kind of clays used for brick manufacture in Connecticut. It is a red, soft, plastic material.

Until they installed a Schofield-Burkett excavator, eight men were employed to dig the daily tonnage of clay. Four horses and carts, in charge of four men, hauled the clay to the plant. This made a total of 12 men and four horses required. Quite a contrast to this is the present use of the drag-line, operated by one engineer, one fireman, one attendant to the excavator, one man to do the general cleaning up around the industrial cars and one man to drive the Plymouth locomotive and haul two clay cars. This makes a total of only five men. In other words, the excavator eliminated the need for seven men and four horses and carts.



Engine House and Car Loading Point of Dragline Excavator Which Replaced Seven Men.

of apparatus, hence it is only natural that the drag-line should not do as well as other machinery in some instances, just as it is true that the excavator is the ideal equipment in many cases.

H. E. Doty, manager of the Berlin (Conn.) Brick Co., is

Cast Steel Slanting Grate Bars Give Longer Service

Western Brick Co. Finds Considerable Saving in Use of Special Type Grate Bar

Unusually fine results have been attained by the Western Brick Co., Danville, Ill., by the use of electrically cast steel grate bars in comparison with the old type of cast iron bars. These grate bars are used in the slant grate type of furnace on periodic kilns. About ten of them are used in each furnace.

Some time ago the Western Brick Co. inaugurated the use of a specially designed cast iron grate. This grate was constructed with notches on both ends which gave it a reversible feature.

Recently these grates were made of a different material. They were manufactured by the Electric Steel Castings Co., who made them of electrically cast steel. As a result of



This Picture Gives You a Good Idea of the Design of the Cast Steel Grate Bar.



The Grate Bars Are in Place in This View of the Furnace of One of the Kilns of the Western Brick Co., at Danville, Ill.

Several small leaks, like a colander, let all the profits trickle away.

ELIMINATE WASTE

this change, the following advantages were noted. The steel grates weigh four or five pounds less than the iron bars, and are much easier to handle around the fire boxes. They burn out more slowly, and thus have an increased life.

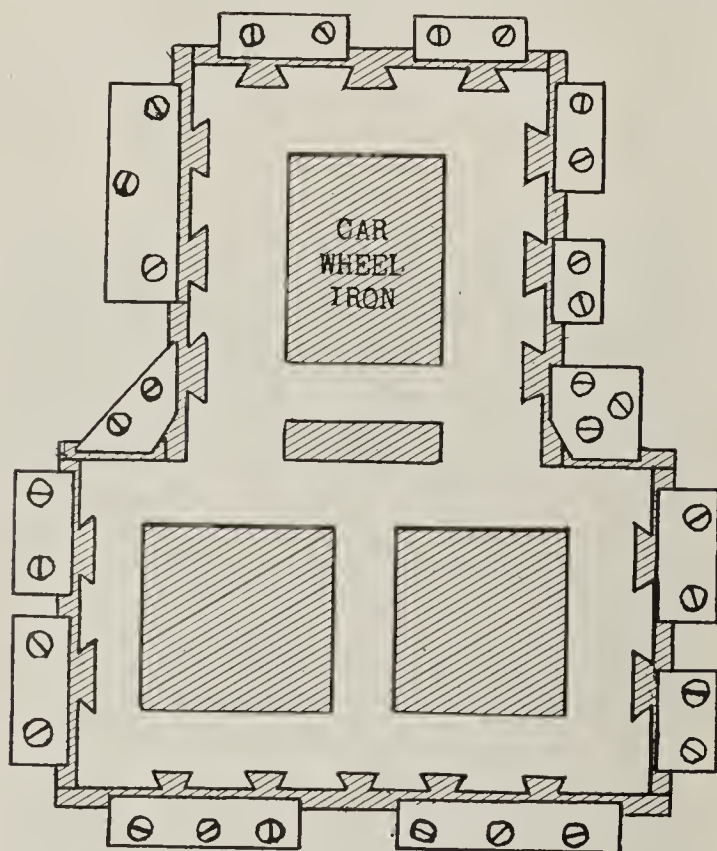
Moreover, the steel grates are much tougher and breakage has been reduced to practically nothing. Coal and ash carts roll right over them without damage. The above advantages are in addition to those gained by the particular design of the bar. Because of the double notches near each end the grate may be reversed when one end is burned out. This adds to the life of the bar. Moreover, a saving in fuel consumption has also been noted.

I. N. Doughty, general superintendent, Western Brick Co., states, "We find these grate bars much superior in every way to anything used previously."

Makes Die Liners in Own Machine Shop

Liners Tile Dies with Steel and
Makes Cores of Car Wheel Iron

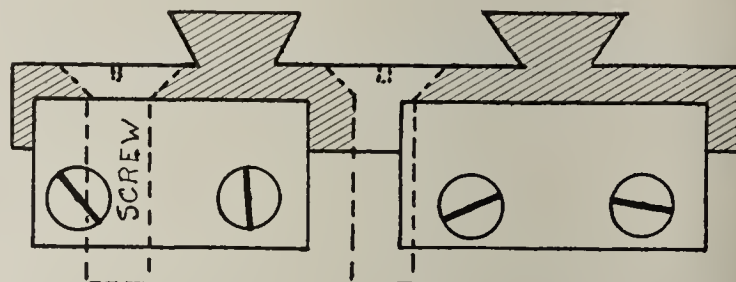
Any manufacturer of hollow tile who is troubled with wearing out of dies, necessitating expensive replacements will find the suggestion herein contained of value. The Sun Brick Co. of Toronto, Ont. machines the wearing parts of interlocking tile dies in its own machine shop and finds the results to be very satisfactory. The liners are shaped from steel on a shaper, and the necessary lugs for the rough face of the tile shaped on it. They are approximately three-fourths of an inch thick and are fastened to the sides of the die with



The Edges of This Die Are Steel Liners Which Can Be Replaced Easily. They Can Be Turned Out in Any Machine Shop. The Cores Are Car Wheel Iron, Also Replaceable.

machine screws countersunk to be flush with the surface. As the clay comes thru the die there is of course a tremendous

pressure on these liners and to aid the screws in holding them in place pieces of steel or iron are screwed onto the surface of the die with ends projecting over the liners for a short distance, as shown in the sketch. These steel liners are very easily replaced and their cost is very low.



A Detail of the Liners Showing Method of Fastening to Sides of Die.

The superintendent of the Sun Brick Co. has further improved his die by making the cores from car wheel iron which is even harder than the steel and lasts almost twice as long as the steel liners. When a die has worn out the liners and cores only need be replaced, a job which takes one man about four hours.

Caterpillar Hoist Unloads All Clay and Coal

Two Men with This Equipment Deliver
Sufficient Material for 75,000 Brick Daily

Those plants which ship in their clay can handle it with the minimum of expense if they use an idea somewhat like that found at the Plymouth Clay Products Co., Fort Dodge, Ia. This company uses a Brown hoist with caterpillar tractor and clam shell. One track at that plant is used for unloading clay and another for unloading coal for the kilns. This equipment, on account of its caterpillar traction, can be moved to either track, and in fact, to any part of either track. In the case of coal, it can move the car after unloading part of it at one point, and finish the unloading at another. The first illustration shows the hoist in operation. The second illustration shows the coal as it is unloaded by this process. Note especially the proximity to the kilns. The distance from the closest part of the kilns to the track is approximately 30 feet. Of course, some of this coal must be wheeled



Coal Storage Alongside of Kilns as Dumped from Clamshell.

IMPROVE YOUR PLANT

to the second line of kilns and dumped around the fire boxes. The roof of the shed above this coal is made in removable sections. When the coal is being unloaded, the section at that point is temporarily removed, otherwise the roof is always in place. This hoist will unload eight cars of clay, each

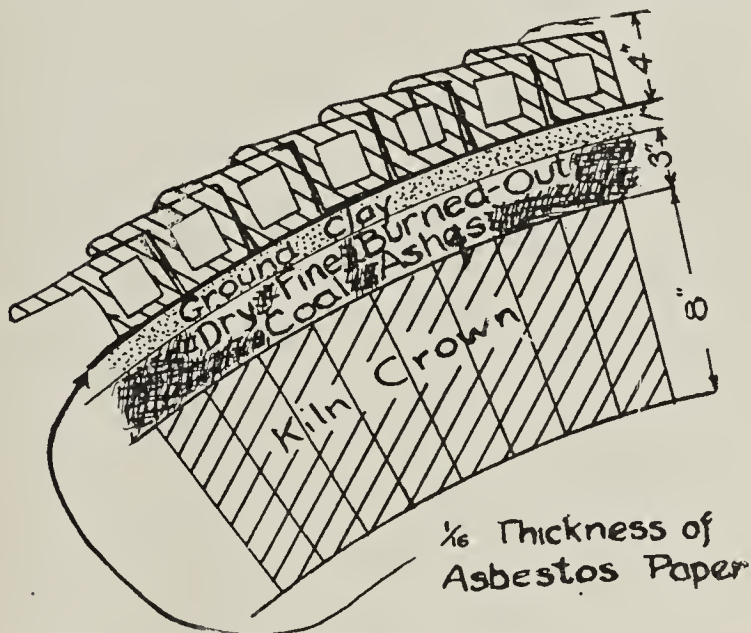
containing 50 tons, or five to six cars of coal, averaging 42 tons, per day. Two men operate the hoist, one at a salary of \$150 a month and the other at 35 cents per hour. Formerly eight to ten men were required to unload coal only at a cost of 22 cents per ton. A large additional advantage that has been gained is that it requires very little supervision. Formerly a large part of the time of the superintendent was required in seeing that the proper amounts of coal and clay were unloaded to insure

ment is placed on large skids so that it can be kept at the face of the deposit thruout the bad weather. It is approximately 50 feet square, and can be pulled back as the face recedes. Since the depth of the vein is 40 or 50 feet, there is ample clay for all of the bad weather encountered in one season.

Fuel Saved Thru Novel Method of Crown Insulation

Patented Block Also Renders the Crown Waterproof and Protects Green Ware in the Kiln

Unmelted snow on the crown of a kiln that is at high heat seems an impossibility, but H. R. Straight of the Adel (Ia.) Clay Products Co., explains that this is possible with the use of the patented block manufactured by that company. The sketch shows the construction in section. The company estimates that 12 per cent. of its fuel is saved on account of



Method of Insulating Kiln Crown Walls.

the reduced radiation. The weight is not excessive but a good crown, with a little more pitch than is ordinarily given, is necessary to hold it. No mortar is used in laying the tile. Altho this covering is not absolutely waterproof, no ware is damaged in the kiln due to water getting thru the crown.

Simple Arrangement for Dressing Surplus Clay from Pot

Requires Only Block of Wood and a Fire to Char the Surface

Very frequently it is hard to block a railroad car on a steep incline, especially if this car is loaded with clay, coal, or manufactured ware. A good system in use in some plants is to take an old tie or similar piece of straight, round wood, and place it in a fire long enough to char part of the surface. A block of this kind is very serviceable under the wheels of loaded cars on an incline, and will assist the brakes in preventing any accident from sliding wheels. The object of charring is to make a soft surface on the wood, which is cut by the pressure of the wheel and also by the pressure of the rail. A block of this kind properly made will not slide on the rail.



Coal Which Has Been Taken Out of Car by Clamshell Being Dumped into Kiln Shed.

capacity operation. Under the present arrangement the superintendent has time for improving more important matters around the plant.

Portable Shed Prevents Injurious Effects During Bad Weather

Moisture in Shale Kept at Constant Percentage by Unique Movable Shed

Frost and moisture always cause trouble in winter if surface clay is used, or if a dry pan is employed for the grinding operation. The North Iowa Brick & Tile Co. of Mason City eliminates practically all of this trouble by the



Boom of Steam Shovel Digging Shale Can Be Seen Indistinctly in Lower Left Hand Corner.

use of a portable shed like the illustration. It is simply a set of trussed beams or rafters, the same as used in the roof of an ordinary shed, fastened together by purlins, and covered with shingles or prepared roofing. In fact, it looks very much like an actual roof of a shed. This portable equip-

How the Coal Situation Stacks Up

Present Rail Conditions Indicate That the Country Will Be Short 88,000,000 Tons of Coal—Reserve Stocks Are All Gone

WILL the railroads be able to transport the nation's full fuel requirements this winter? Are the mines capable of producing full requirements? Will coal prices be forced down; or will there be a panicky market? What are the possibilities for another miners' strike next April? Even King Solomon would have hesitated to offer advice on these questions.

Opinions from sources that are close to the coal and railway problems, are divergent and discordant. Those in the railroad field offer different opinions than those in the coal industry. One must make up one's own decision from what are apparent facts.

The railroads admit that they are hard pushed at the present time. The strike has hampered them, and locomo-

with respect to coal shipments, and claims that the railroads have fair stocks of fuel on hand.

U. S. Will Be 88,000,000 Tons Short

Against these claims are points brought out by others who view the situation with considerable alarm. They argue that up till October 1, 271,000,000 tons of bituminous coal were produced. The weekly tonnage at the present time, which is the limit of the railroads' ability to handle this material, is less than 10,000,000 tons. If this production were maintained till January 1, 130,000,000 tons would be produced during the remainder of the year, which added to 271,000,000 would round out a total of 401,000,000 tons of coal for the year 1922.

The average yearly production of bituminous coal for the past ten years has been 489,000,000 tons. Thus this year's production, assuming our figures to be approximately correct, will be short 88,000,000 tons, or the equivalent of a full two months' supply. With all lines of business going ahead at the fullest pace possible under present labor, fuel and rail conditions, it would not take much of a logician to draw a conclusion from these premises, which spells trouble—some months ahead for the nation, and especially the clay industry.

Clay Industry Will Enter 1923 Without Stocks

The clay industry is emphasized because of the unusual situation prevailing in this business at this time. A recent report of the Common Brick Manufacturers' Association states that the stocks of its members are unusually low. It is doubtful if the clay industry ever entered a winter with less stock reserves of burned ware on hand than it promises to enter this winter. Yet 1923 looms up as another year of many building operations. A demand for building products will be assured for spring, but there will be no reserves to draw from.

It is true that last year only 416,000,000 tons of coal were produced, but last year business was in the dumps, and production in nearly all lines at unusually low ebb. There are many who claim that only a miracle will save this nation from the necessity of re-establishing "heatless Mondays."

The situation with respect to hard coal is much the same as with soft coal. In the East, priority orders and fuel ad-

WEEKLY PRODUCTION OF SOFT COAL—1922 AND 1921
The following table shows the weekly production (in net tons) of soft coal in 1922 and 1921, as reported by the Geological Survey:

Week ended—	1922	Corresponding Week 1921	Week ended—	1922	Corresponding Week 1921
Jan. 7..	7,476,000	10,763,000	May 27..	4,889,000	8,166,000
Jan. 14..	8,302,000	9,936,000	June 3..	4,616,000	6,835,000
Jan. 21..	8,782,000	9,184,000	June 10..	5,136,000	8,010,000
Jan. 28..	9,615,000	8,570,000	June 17..	5,013,000	7,551,000
Feb. 4..	9,714,000	8,132,000	June 24..	5,363,000	7,704,000
Feb. 11..	10,309,000	7,859,000	July 1..	5,226,000	7,658,000
Feb. 18..	10,285,000	7,489,000	July 8..	4,678,000	6,165,000
Feb. 25..	10,402,000	7,432,000	July 15..	4,123,000	7,401,000
Mar. 4..	10,541,000	7,278,000	July 22..	3,692,000	7,380,000
Mar. 11..	11,102,000	6,900,000	July 29..	3,952,000	7,319,000
Mar. 18..	10,846,000	6,512,000	Aug. 5..	4,313,000	7,186,000
Mar. 25..	11,448,000	6,457,000	Aug. 12..	4,606,000	7,771,000
Apr. 1..	10,469,000	5,822,000	Aug. 19..	4,609,000	7,708,000
Apr. 8..	3,835,000	6,120,000	Aug. 26..	6,736,000	7,753,000
Apr. 15..	3,656,000	6,528,000	Sept. 2..	9,359,000	7,606,000
Apr. 22..	3,575,000	6,815,000	Sept. 9..	8,791,000	7,083,000
Apr. 29..	4,175,000	6,984,000	Sept. 16..	9,737,000	8,187,000
May 6..	4,164,000	7,391,000	Sept. 23..	9,702,000	8,528,000
May 13..	4,433,000	8,009,000	Sept. 30..	9,950,000	8,883,000
May 20..	4,481,000	7,989,000			

*First week of coal strike. †First week of railroad strike.
‡Subject to revision. §Preliminary estimate.

tives and cars are not in the best condition. However, they claim that much of the cause of the present shortages and resultant priorities is due to the heavy shipments of coal, in addition to the voluminous shipments of harvest products.

Railroads Hauling at Capacity

Under normal conditions, at this time of the year the railroads have usually completed about one-half of the replenishments of coal stores. The strike threw these shipments into the present period, and gave the railroads an extra burden at a time when there is always a strong demand for cars and locomotives.

It is said that the railroads expect this rush to be over about the latter part of November, and from then on greater shipments of coal may be possible. They point out, however, that this is contingent upon what general business requires.

Moreover, the railroads, not two or three, but all of them, have ordered a large quantity of cars and locomotives. They are preparing for a year of big business in 1923. Most of this equipment, however, will not be available until 1923. Present equipment is in nearly as good condition as a year ago.

The morale of the men on the carriers is good, it is claimed, and a representative of Railway Age anticipates no tie-up

ANNUAL SOFT COAL PRODUCTION

Year	Million Tons
1913	478
1914	422
1915	442
1916	502
1917	551
1918	579
1919	458
1920	556
1921	416
Yearly average	489

ministrators have placed the distribution of coal on a more stringent basis than in the Middle West.

Must Have Four Weeks' Supply

A great many people hold the idea that business can go ahead as usual even if we produce each week only as much coal as we use. That is true only in case our reserve stocks of coal are at hand in sufficient quantity to insure fuel safety.

At least a four weeks' supply of coal must be in reserve stores, or the situation will not be easy. This is equivalent to approximately 35,000,000 tons.

Under extremely favorable conditions, with everyone busy and the railroads holding up their end in good shape, we might be able to build up adequate coal reserves in 20 weeks. Theoretically this might be accomplished in less time, for the soft coal production in certain weeks during the war and again in 1919 was forced up to a total in excess of 13,000,000 tons. However, the key to the situation is transportation and not mine capacity. The mines are capable of furnishing more than the necessary fuel requirements, even in the short time allotted.

The fact that coal production this fall may reach a total even as high as 12 to 13 million tons weekly will not bring prices back to normal, unless the whole history of the coal

industry is misleading. In every case where the average stocks of soft coal have been seriously reduced, there has been an upturn in prices, and usually a buyers' panic as long as reserves remained below a 30 days' supply. During the last six years, the nation has had high coal prices each time the average stock of bituminous fell below a 35 days' supply.

For some weeks past there has been a tendency to hold off purchasing of coal, in order to bring about a reduction in coal prices. To some extent this buyers' strike has been successful, and some reductions in coal are reported. However, this buyers' strike must end very soon. It is not at all unlikely that prices will react quickly, and even pass the mark protested against.

The present miners' agreement expires next spring. April 1 may bring another spell of coal mine non-productivity. Some coal operators predict trouble.

Buy All the Coal You Need for Steady Operation

WITH EVERY PROSPECT for a good spring and summer business, for clay manufacturers, coupled with the fact that clay plants have low stocks of clay ware and also coal on hand, it is certain that the manufacturer must do some immediate deep thinking on the coal situation. It is a case of pure gamble on what the future six or eight months have in store for us, with regard to the pace of business, cold weather possibilities and the railroads' capacity for tonnage movements.

Prices of coal may come down; but they may not. They may go higher. Right now screenings are a drug on the market, yet Illinois screenings are at \$3.25 and \$3.50 per ton. Last March they were only \$2 and \$2.80 per ton. This gives you an idea of about how much coal might drop in case of a surplus.

Railroad Efficiency Will Not Increase Much

Some buyers argue that railroad efficiency will increase since the termination of the shopmen's strike, making it possible for the roads to haul more and more coal every week. It must be borne in mind, however, that any increase in number of good order cars will be offset by the natural seasonal inefficiency during winter. Moreover, the car situation can hardly improve more than ten per cent. at the best

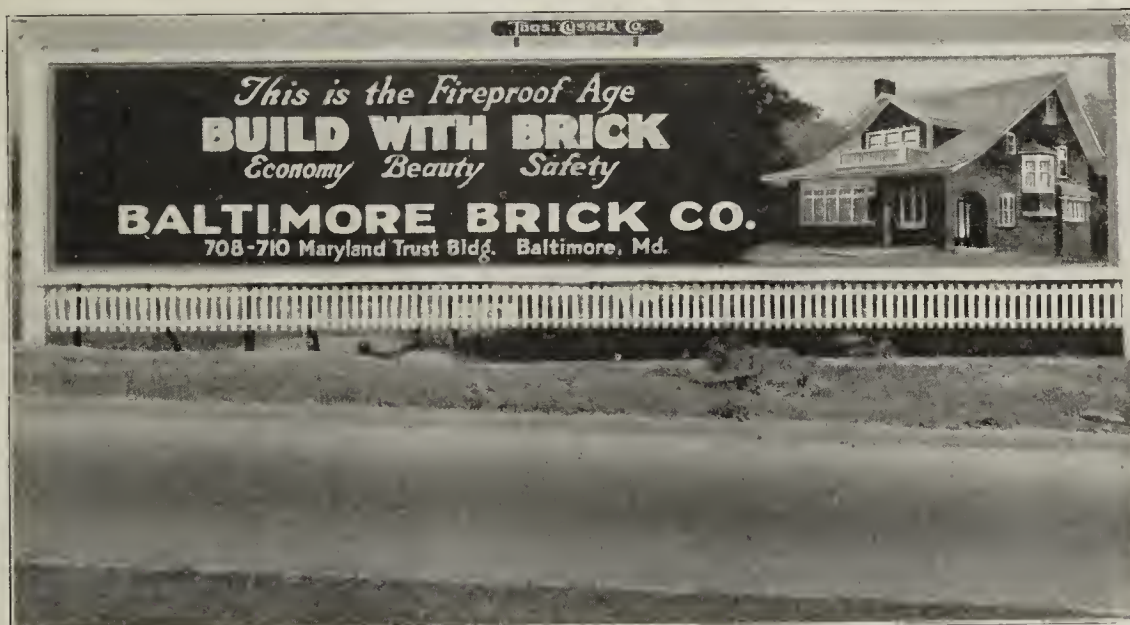
which would not alleviate the situation sufficiently to quell all alarm.

It is the opinion of Brick and Clay Record that all indications point to it being the wisest course for manufacturers to purchase every bit of coal possible and required to tide them over until late spring. In the long run, it will be much better to have sacrificed the opportunity of obtaining coal a few cents cheaper than to have sacrificed the opportunity of obtaining any fuel at all, and being required to suspend operations in the midst of an excellent market condition. It is usually better to be safe than sorry.

Some clay plants are still in the plight of not being able to obtain coal. On the other hand, Brick and Clay Record knows of some coal operators who have been unable to dispose of unconsigned spot coal because of buyers' strike. It is very likely that in some instances Brick and Clay Record can act as a clearing house for manufacturers in the Middle West, and for those clay manufacturers who are interested, if they will write Brick and Clay Record to that effect, efforts will be made to put them in touch with coal operators who have fuel available. Brick and Clay Record will be glad to exert its utmost efforts to aid clay manufacturers to secure sufficient quantities of fuel. Address your letters to the Coal Editor.

First of the billboards to be used to bring home to the people the value of residences constructed with brick have made their appearance in and near Baltimore, Md. The work is the result of co-operation between the Baltimore Brick Co. and the Common Brick Manufacturers' Association of America.

So far five billboards have been erected by the Baltimore company, officials of that firm advise, these being erected on main automobile thoroughfares and near railroads. The signs are of a more or less permanent character, in that they are made of metal and painted.



The wording on the signs is similar, but each is different in that the picture of the house on each board has been taken from the association book "Brick for the Average Man's Home."

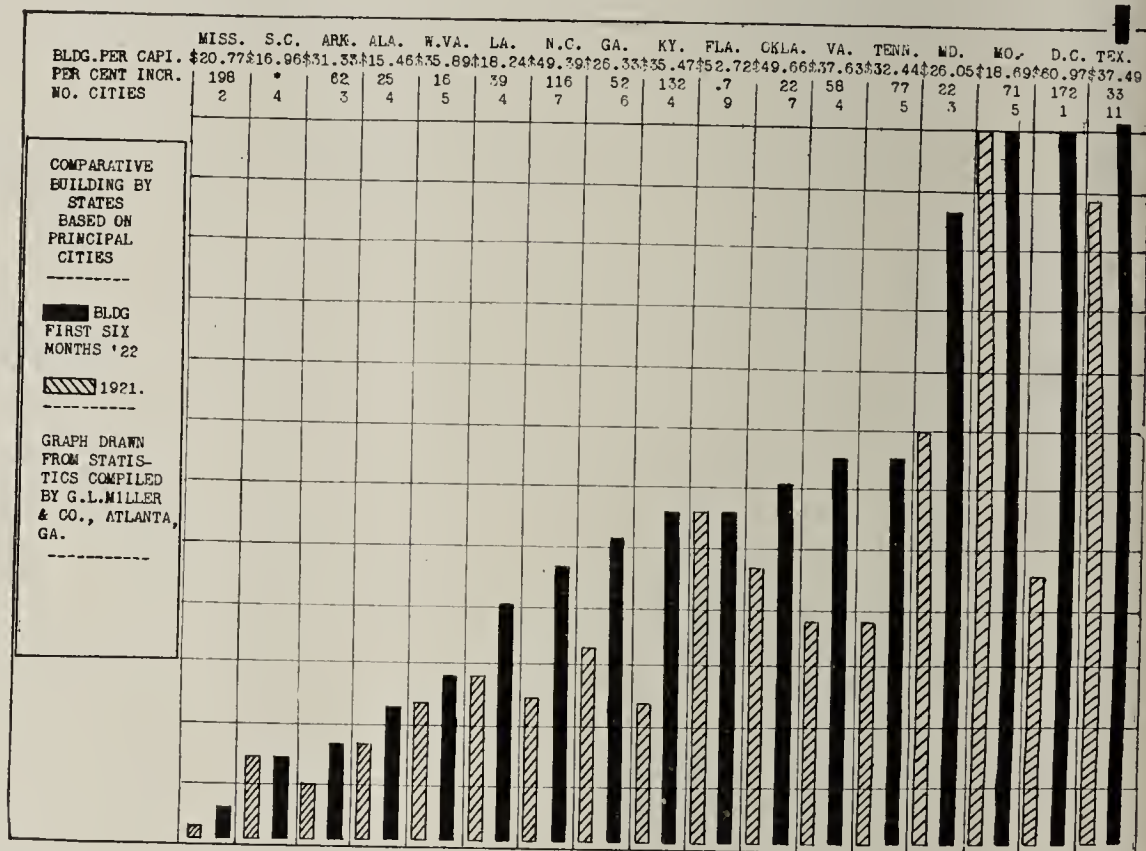
Business Briefs and Trend

SOUTH SHOWS REMARKABLE GROWTH IN CONSTRUCTION OVER '21

Construction work in the Southland has been proceeding apace ever since the opening of the season early in 1922. This statement is borne out by figures and facts gathered and disseminated by G. L. Miller & Co., Atlanta, Ga., real estate and mortgage bond organization, from an exhaustive survey of building conditions in 17 states south of the Mason and Dixon Line, including the District of Columbia. A gain of fully 42.7 per cent. in value of permits is apparent from the figures which G. L. Miller, president of the company, has furnished to 32 daily papers in that great section of the country. From Mr. Miller's figures, a staff representative of Building Supply News prepared the accompanying graph which portrays quickly and concisely the results of this vast investigation.

From every available source of reliable information, G. L. Miller & Co., gathered the data. It shows that the South is forging ahead, that it is awake to its opportunities and intends to realize on its great potential resources. It has the capital to develop these resources and is constantly taking advantage of new capital which is being attracted to that section.

The graph needs no comment. The results it registers stand out as an achievement worthy of emulation in every other part of the United States.



Graph Prepared by Staff Representative of Building Supply News from Figures Compiled by G. L. Miller & Co., of Atlanta, Ga., Showing 42.7 Per Cent. Increase in Building in the South for the First Six Months of 1922 Over the Same Period of 1921.

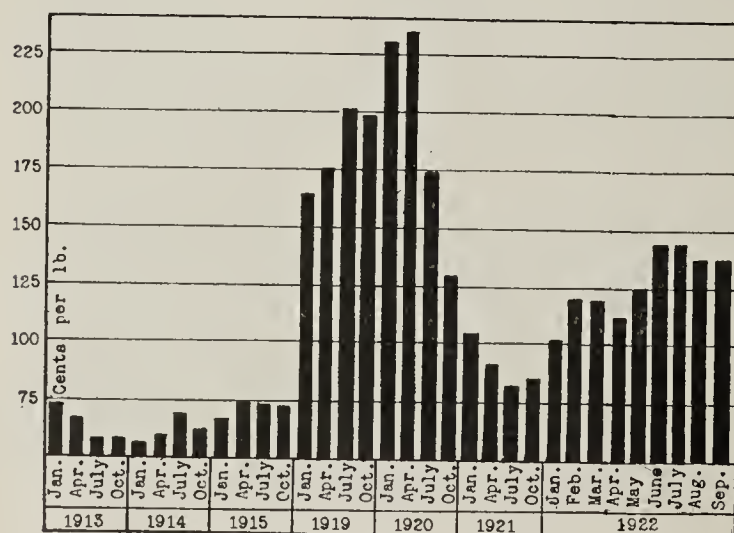
present time, indicates that the total figure has increased approximately $3\frac{1}{2}$ times in this nine months' period. From an aggregate of \$50,000,000 at the beginning of the present year the amount has grown to over \$175,000,000. The demand for cars from American Car and Foundry and Pullman has kept pace with the orders given to locomotive concerns for new engines. In each case the unfinished business is sufficient to keep the company busy well into 1923.

FARMER ON WAY TO PROSPERITY

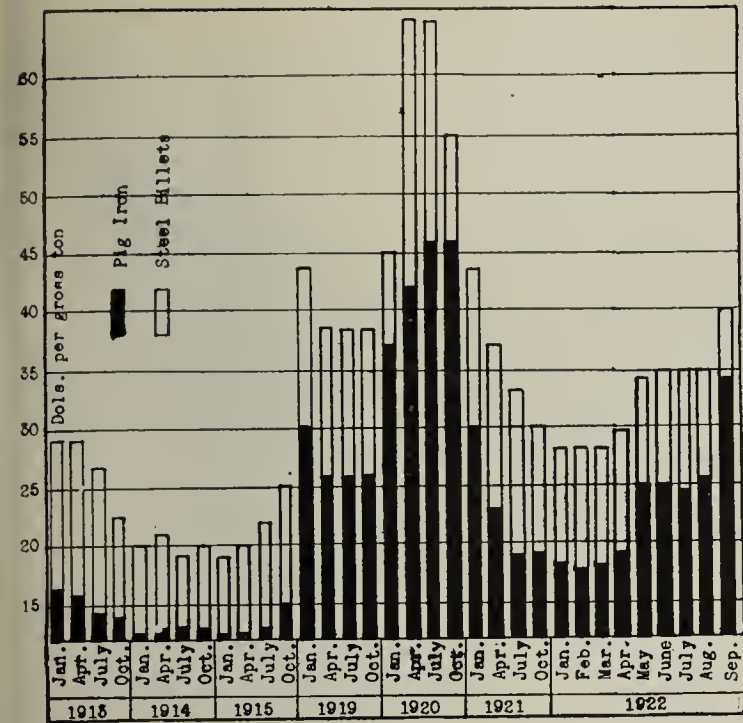
Crops and livestock production for 1922 will total \$13,650,000,000—\$1,284,000,000 above the 1921 production, and \$250,000,000 greater than the farm production in 1916. As compared with pre-war average production it gives farmers a purchasing power of 145.

Corn yield this year is slightly under last year, but the farm price is much higher and strengthening instead of weakening. The value for the year will total \$350,000,000 more than last year. Tobacco production was much greater than last year and prices are higher; the value will be \$100,000,000 greater. Hay adds \$100,000,000, cotton \$450,000,000, barley \$20,000,000. The wheat crop is 28,000,000 bushels greater than last year but is valued at the same. At present, prices are well maintained. Potatoes, also a big crop, are valued at \$12,000,000 less than last year.

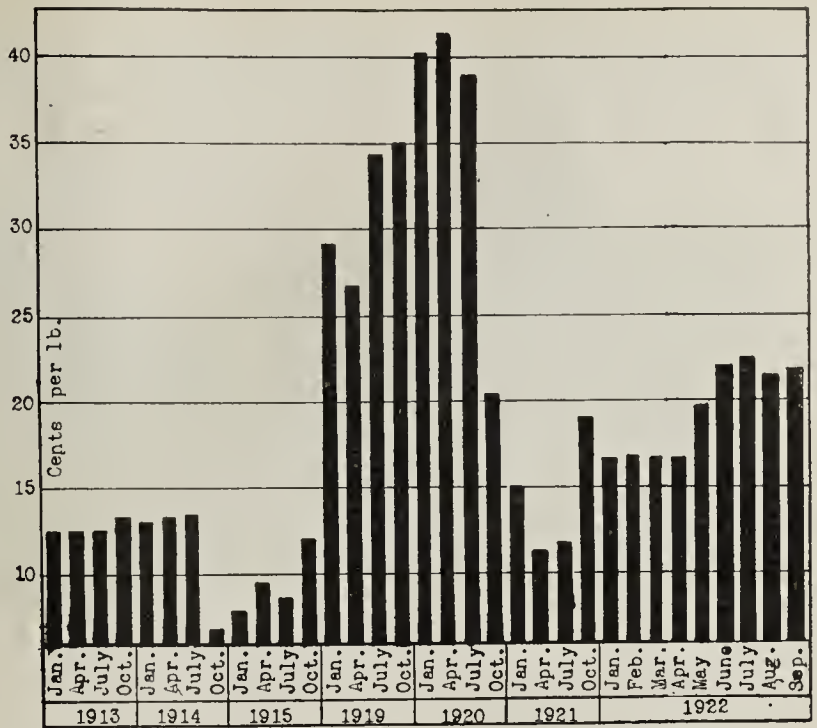
As to livestock, farmers raised 5,000,000 more swine. The



Wholesale Price Trend in Cents Per Pound of Ohio Fine Delaine Wool, Clean Basis, Boston.



Wholesale Price Trend of Valley Furnace Basic Pig Iron and Open Hearth Steel Billets, Pittsburgh.



Wholesale Price Trend of Middling Cotton, Spot, New Orleans.

price is higher than last year and is strong against all assaults. More cattle were raised and many more are being finished. Prices are good and well maintained. Sheep will bring fine profits. Prices of sheep and lambs are 50 per cent. higher and wool is double last year's price. Poultry and dairy products dropped somewhat this summer, but are coming back strong.

Last year, farm products were feeling the general deflation, unemployment in the cities and apprehension as to the future. This year the general feeling is of confidence, everybody is working and wages are tending to rise. Farmers will prosper thereby.—The Farm Journal.

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SEEK SOLUTION TO COAL WAGE PROBLEM

Unable to agree among themselves as to a plan for negotiating future wage scales, the bituminous coal operators have entered the conferences with the miners' union as individuals. The mine workers, on the other hand, have announced thru John Lewis, president of the United Mine Workers, that they are in unanimous agreement and insist that the operators form a responsible organization with which they can deal.

The miners are hostile toward the fact-finding commission created by national legislation; but the operators are split,

some sharing the workers' views and others inclined to await the findings of the President's commission. The conference is now in session at Cleveland.

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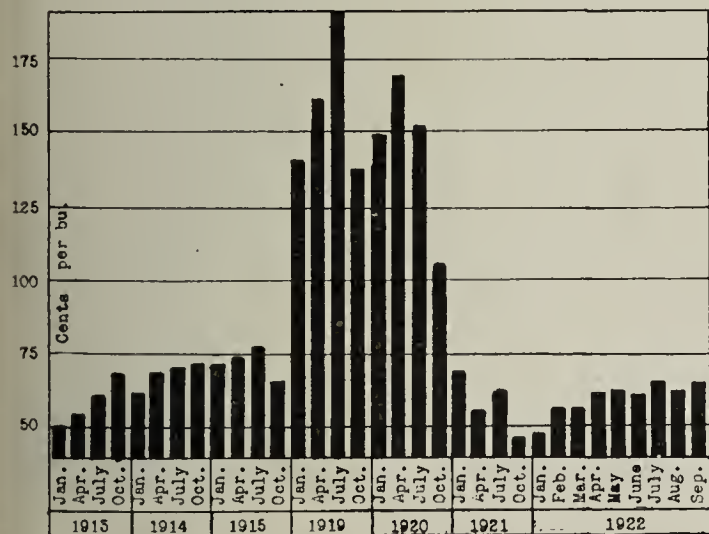
NATION PLANNING VAST ROAD DEVELOPMENT

Construction of highways and bridges is by far the leading single purpose for which the \$1,071,506,981.28 outstanding debts of all the states were incurred, the Bank of America statistics show, the total of \$367,687,100 in highway bonds representing 34.3 per cent. of the entire indebtedness of the states. These figures are further significant, the Bank of America points out, when it is remembered that the development of state highway systems is comparatively recent and that a large proportion of these sums has been doubled by federal aid. And yet for all this highway development vital to our life and commerce the per capita state debt is only about \$3.50.

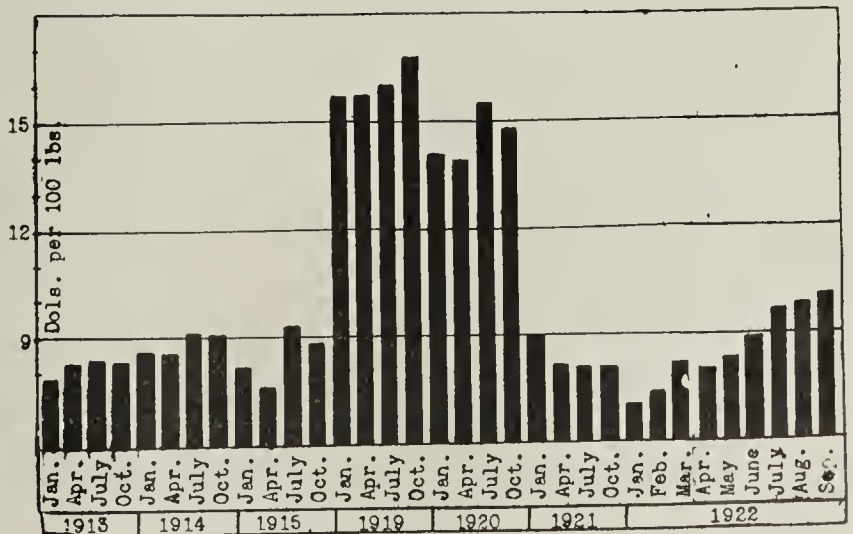
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COMMON BRICK PRICE REMAINS STEADY

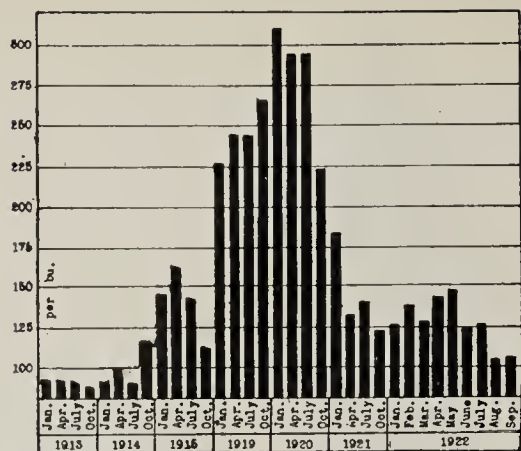
Reasons for the rise in the price of common brick recently are graphically told in the latest information emanating from the headquarters of the Common Brick Manufacturers' Association, Cleveland, Ohio. It is shown that the manufacturers



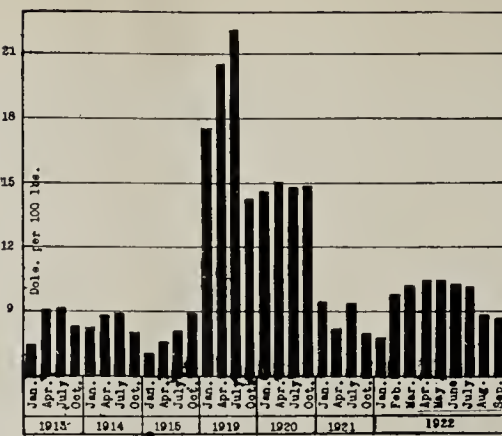
Wholesale Price Trend of No. 2 Mixed Corn, Chicago.



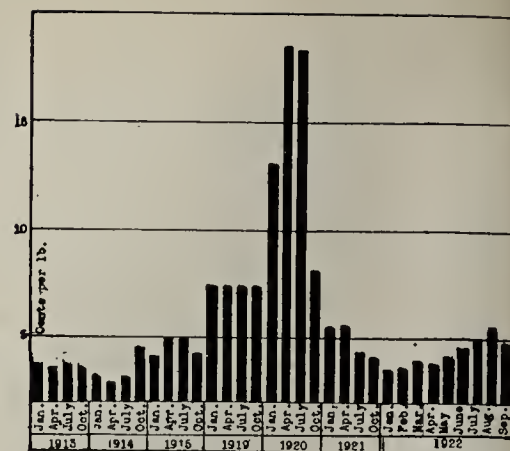
Wholesale Price Trend of Fair to Choice Native Steers, Chicago



Wholesale Price Trend in Cents Per Bushel of No. 1 Northern Spring Wheat, Chicago.



Wholesale Price Trend of Good Merchantable Hogs—Pigs and Rough Stock Excluded, Chicago.



Wholesale Price Trend of 96° Centrifugal Sugar, Duty Paid, New York.

may have contracted for coal at pre-strike figures they can not expect deliveries, hence are forced to buy in the open market at excessively high figures. Yet the average increase in the price of brick in 12 districts is only 62 cents a thousand for September over August.

The common brick industry has orders for 48,000,000 brick yet undelivered, but appears to be catching up, since 2,000,000 more brick were delivered in September than in August. Sixty-two out of 71 manufacturers reporting think the outlook is good.

EXHIBIT IDEAL WALL AT CLEVELAND

One of the interesting exhibits in the exposition conducted in connection with the American Society for Municipal Improvement convention held in Cleveland, Ohio, week of October 2, was the Ideal brick wall, advocated by the Common Brick Manufacturers' Association. A section of this wall was constructed, the material being supplied by the Cleveland Builders Supply & Brick Co., and excited a good deal of comment among those who are already familiar with it and those who had not yet seen it used in practical manner.

The Building Situation

FALL CONSTRUCTION activities in the New England districts show a strong tendency of speeding up current work before the coming of winter, and labor shortage alone is the hindering factor in the situation. Contract awards show a little decline in advance operations, and are now running from \$5,000,000 to \$6,000,000 weekly.

Connecticut building is showing a comfortable advance over the corresponding figures of a year ago, with permit valuations from the leading cities averaging from \$850,000 to \$1,000,000 weekly, gross. The bulk of work is of residential character.

Industrial operations in Rhode Island show increasing strength, particularly in the line of textile mills, with total valuation of present work well over \$500,000. The extent of demand for common brick is shown by the fact that from \$25 to \$28 a thousand, delivered, are the current quotations.

New York

New York construction operations are increasing with the advent of the fall season, and with heavy advance work in sight, there is every evidence of a busy winter period. Contract awards for the past few weeks range close to \$8,000,000 in the five boroughs, with Brooklyn still leading with residential construction. Weekly dwelling operations average about \$4,500,000 in the Greater City.

The local common brick market has become fairly well stabilized at \$14 to \$16 a thousand, wholesale, alongside dock. Arrivals are running about 30 to 34 cargoes per week, with approximately one-half this quantity remaining unsold.

The burning of green brick continues as the main feature of production in the Hudson River district. Progress has been made in the past few weeks, and it is now stated that there will be a sufficient supply for all New York City demands during the winter.

New Jersey

All important districts in New Jersey continue to advance in construction, the fall figures leading the months of July and August by many hundreds of thousands of dollars. Newark maintains a lead of well over \$500,000, as compared with the corresponding month of last year; Jersey City, more than \$1,000,000; Camden, about \$100,000; Trenton, \$110,000; and Paterson, close to \$300,000.

Apartment houses, two-family and one-family dwellings form the bulk of the work, with public structures now looming as a close second. In the latter connection, brick school construction is a prominent feature. Industrial work holds at a low ebb. East Orange is leading all other communities in the Northern New Jersey district in small house construction.

Philadelphia

September operations at Philadelphia, Pa., aggregated \$11,714,000, covered by 2,020 individual jobs. Two-story dwellings take the lead at \$3,903,745 for the period, with three-story houses reaching \$533,000; of these 140 residences, more than four-fifths are of brick. Industrial work totaled \$2,000,000 during the month, and office buildings, \$1,500,000.

At Reading, Pa., the record for the first nine months of the present year stands at \$4,400,000, or an increase of more than 100 per cent. over the corresponding period of 1921. New construction now in immediate sight is estimated at \$500,000.

September construction at Harrisburg, Pa., totaled \$300,400, or approximately double the figures for the same month of a year ago. This month broke all previous construction records at Erie, Pa., with the valuation of building permits issued running to \$1,210,000.

Pittsburgh work in September was covered by 542 opera-
(Continued on page 582)

A. F. B. A. Will Meet at West Baden



The Beautiful Building and Grounds of the West Baden Springs Hotel, Where the Face Brick Men Will Meet.

WEST BADEN, Ind., on December 5, 6, and 7 will be the host of the American Face Brick Association during its annual convention. The magnificent West Baden Springs Hotel will be the headquarters of the face brick men during their stay and the management has assured its guests excellent facilities. This hotel has spent probably \$1,000,000 in improving its properties and has succeeded in raising the plane of the establishment from the ordinary to the very highest class. The country's best citizens are now catered to and its service is of the very best. Despite the excellence of the hotel's standard the A. F. B. A. is pleased to announce that the rates will be fairly reasonable. Eight dollars per day will be charged, including room and meals; the hotel being operated on the American plan.

It is as yet too early to announce the details of the program and all that is definitely known is that it will at least be up to the high standard set by previous A. F. B. A. conventions. If Secretary Hollowell's present plans can be carried out the 1922 meeting will stand out as a bright spot in face brick history. Already a splendid list of high calibre men has been scheduled and these men will speak on subjects which at the present time are of the greatest interest to face brick manufacturers. It is doubtful whether the face brick industry ever has gone thru a more important period than the one thru which it is now passing. The December meeting

will be an excellent place to gain a good insight into conditions. It is certain that the best talent that can be mustered will be on hand to address the delegates.

All indications point to an unusually large attendance. The association has acquired new members during the year and in general an exceptional amount of interest has been manifested in its affairs. Plans for next year must be formulated and consideration given to the important problems of the industry, such as fuel supply, the labor situation, construction outlook, freight rates, advertising program, and many others.

But the convention will not consist entirely of brain-racking business sessions. There are many things at West Baden and at West Baden Springs Hotel to offer diversion during the spare time. If you play golf, bring your clubs. One of the sportiest courses in the middle west is located to test your skill over nine interesting holes. Aside from golf there is riding, tennis, swimming, dancing, cards, bowling, billiards, and lots of other amusements to make the convention a pleasurable one as well as a profitable event.

The old adage tells us "Business before pleasure" and that has been proven to be a good rule, but at the A. F. B. A. convention you will be able to combine business with pleasure. Send your reservations to the secretary, R. D. T. Hollowell, and remember the dates, December 5, 6 and 7.



Pompeian Room of West Baden Springs Hotel, West Baden, Ind. This Monstrous Domed Room Is 200 Feet in Diameter and 130 Feet High. There Are 40,000 Square Feet of Floor Space in This Atrium.

Business and the Trade Association

The Trade Association is a Vital Factor in Your Business—This Article Tells You Why

R. D. T. Hollowell*

Secretary-Treasurer, American Face Brick Association

Editor's Note.—This article is a discussion by Mr. Hollowell of the excellent dissertation by O. B. Towne, secretary of the Waxed Paper Manufacturers Association, which was published in the last issue of Brick and Clay Record. Mr. Towne discussed the "Philosophy of Trade Associations." His discussion created considerable interest and several letters were received by Brick and Clay Record commenting on the excellence of the article.

ALL OF US well understand that the underlying motive for the formation of the vast majority of present-day trade associations was a desire for that protection which is created by the coming together of sympathetic interests. Whatever the motive for organization, the evolution of the American trade association from the crude, selfish and oftentimes inefficient organization of only a few years ago, to the admirably organized institutions which, in rapidly increasing numbers, are practicing the motto of Rotary to the member and public alike, is, to my mind, one of the most wonderful developments of American business. The modern trade association, in its last analysis, has become a great educational institution, teaching its membership how to transact business safely and ethically, and at the same time, enlightening the public as to the advantages of its products of manufacture or service.

Mr. Towne has amply covered the history of associated effort by trade organizations and the controlling purposes for the maintenance of their chief activities. Continuing Mr. Towne's analysis, with which I am sure no one could take exception, the query naturally arises, "Is the trade association to continue an object of suspicion by the Government and the public, or will it eventually be recognized as a fundamental necessity for the welfare of this nation?"

Country's Development Rapid

In the last hundred years the means of production, transportation and distribution of commodities have increased enormously, and apparently there is no limit to further development. The standard of living has steadily risen. For the masses, it is today, superior to that of the privileged few of only a short time ago. Early in our industrial era, increasing productivity cheapened cost. This was reflected in lowered prices which stimulated consumption, whereupon increases were made in production, leading to additional improvements. This again cheapened cost, lowered prices and the cycle repeated again and again. But capability of consumption, and with it the demand for commodities of industrial production, is not susceptible to unlimited increase. A time finally comes when the means of production out-strips the demand possible under existing conditions. This seems to be our situation today.

Our country has offered vast opportunity for development. At the beginning of our industrial era it was still a comparatively new country with a wealth of capital in natural resources and a relatively small population. Our vast natural resources made it possible to use what had not been produced

and led to an average standard of living beyond that of any other country. We have, to a great extent, been living on our capital rather than our income and, as a nation, have acquired habits of the spendthrift. Already many of our national resources have been seriously depleted, and when the time comes when every tree cut down will have had to be planted and raised, and when it becomes necessary to fertilize the soil for whatever is taken out as crops, at that time, we will not be able to maintain our present standard of living, unless we have a radical change of attitude by our Government.

Public Suspicious of Organized Business

Our industrial development has taken place mainly since the Civil War, and owing to the rapidly increasing population, together with the aggressive development of our farming, manufacturing, mining and transportation industries,



R. D. T. HOLLOWELL

America has, until recently, been fairly well able to consume its own production of manufactured articles. With the enormous increase in our productive capacity within the last decade, and particularly during the great war, our industrial problem of today is urgent.

Unlimited Competition is Not Good

In recent years the public has been constantly agitated by investigations of our "profiteering barons" and "malignant combinations." The public feels that there is some hitch in the working of our time-honored "free competition" but it does not know just where. It is today demonstrating its lack of confidence in business generally by keeping its money in its pocket.

*Courtesy American Trade Association Executives.

With a few notable exceptions, our professional political economists are steadfast in the early conception of competition as a benevolent force in industrial progress. This conception was based on the theory that by unlimited competition between producers, prices would be lowered and kept nicely balanced at just that point representing cost plus a fair profit. The fallacy of such reasoning is the oversight of the economic law, well understood by intelligent manufacturers, that it is more economical to operate a plant at a loss, up to a certain point, than it is to shut down. This is because a factory standing idle, involves a continuous loss in fixed charges, including the total of interest on investment and taxes, and at least an appreciable percentage of labor, fuel and depreciation, whereas it might be operated on a basis, less than cost, and make at least a portion of the fixed charges and overhead. Therefore, as soon as production has increased beyond the available demand for the product, unlimited competition will force the price down below cost plus a fair profit, and as a matter of fact, the falling price will stop only at that point where it becomes cheaper to stop production altogether than to continue to produce at a loss; that is, where the loss when operating exceeds the loss of standing idle.

Overproduction Unhealthy for an Industry

I have personally seen the working of free competition in the face brick industry, with overproductions year after year, with prices forced down below the cost of production, and with the bulk of the surviving manufacturers on the ragged edge of ruin. Such a situation is shocking to contemplate, but it is not beyond possibility in any manufacturing industry. The natural climax of such a situation, if allowed to be continued, can result in nothing save the bankruptcy of many producers, serious losses to others and in a widespread destruction of values.

Generally speaking, foreign commerce in our commodity, face brick, is impracticable. Aside from the problems of ocean transportation requirements and costs, practically every country has its own supply of brick or a substitute. But even tho face brick exports, during the most favorable periods, are negligible, our people know that this country's future prosperity is now dependent upon the ability of those industries which can export, to dispose of their surplus elsewhere. They know this, for they, themselves, have experienced the severe and far-reaching depression of the last many months (1921) and well understand it was primarily caused by the dislocation of the machinery of the world's markets.

Foreign Competition Well Organized

But assuming world conditions now were what might have been regarded as fairly normal in pre-war times, would we be able to maintain our superiority in our domestic market and to export our surplus against foreign competition? While there is, of course, no definite answer to this speculation, I cannot but feel that the answer would be in the negative. All industrial countries learned lessons in organization and mass production during the war, and I have heard of no elevation in the business tactics of our foreign competitors.

Is our foreign competition organized? It is almost a waste of breath to detail to you gentlemen the extent to which trade combinations for both domestic and export business have been carried in all foreign industrial countries.

English and French Laws

In Germany, the cartel is unrestricted by law in the monopoly of the production and sale of any commodity until it prevents an independent organization from starting up in business. Practically every industry is manipulated thru one or more cartels, most of which not only sell the products of their members at agreed prices, but curtail production at will and divide territory when that seems advisable.

England has effective laws relating to monopoly, but they apparently do not enforce them with respect to combinations for import and export, nor do they regard domestic manipulation when it does not assume monopolistic tendencies, with any great seriousness.

France has legislation for the regulation of combinations, but they allow their syndicates a latitude beyond the wildest dream of a radical opponent of the Sherman Law.

Japan has a growing number of trade organizations which exercise almost the same functions as the German cartel.

Belgium, Holland, Switzerland, Spain, Portugal and practically the balance of the list either encourage combinations in industry or do nothing to interfere with agreements curtailing production or fixing prices.

Webb Law Permits Combination for Exports

The Webb Law has been enacted whereby our citizens have the right to combine for export trade, but that right is only a step toward the necessary recognition that a proper amount of cooperation in domestic trade is essential to maintain our present position as the foremost industrial nation. Applying to domestic business, we have both Federal and State laws carrying penalties of fine and imprisonment for participation in a combination "in restraint of trade." In view of the freedom allowed our foreign competitors, in their domestic as well as foreign commerce, when we recall the fact that our own Federal and State Governments are now condemning the right of a trade association to disseminate information as to prices and quotations which have already been made, and in some instances are questioning the propriety of the practice of gathering statistics on production, stock and unfilled orders, does it not seem utterly amazing?

Secretary of Commerce Hoover recently made a statement to the effect he regarded the trade associations of this country as the principal means for developing the collective efficiency of American industry, which is very much below the collective efficiency attained in industrial countries with which we compete; that there was no question as to the superiority of American individual efficiency, but that collective efficiency will have to be greatly developed if this country is to be kept in a prosperous condition. How can American industry continue to progress and become collectively efficient, even tho it has the right to combine for export, if its units are made to fight in domestic trade to the logical conclusion of the "survival of the fittest," with our vigilant Federal and State Governments standing ready to prod any weakening combatants?

Outlook Is Encouraging

I do not wish to appear as a pessimist, as I am really very much the reverse. There seems to be rifts in the clouds. It is too early to say, however, whether we are to have more rain or are to be treated to the sight of a little sunshine. American business has two outstanding things to be thankful for—a wise and just Supreme Court, and Herbert Hoover. Between the two, I think we may have a glimpse of the sun.

It seems to me that a frank discussion as to the reasons for the existence of trade associations is peculiarly timely. Has it occurred to you that the time is not far past when the trade association scarcely understood itself? Today, it has a fairly clear conception of the vastly important work of standardizing, systematizing, stability and education which it alone can and must accomplish. On the other hand, the public, having obtained its knowledge of the trade association principally from sensationally worded accounts of alleged "criminal conspiracies" and in utter ignorance of the vital necessity of the trade association for its own continued prosperity, looks askance at the trade association's very existence.

Tell the Public the Facts

If these deductions are logical, why is it not our duty, as representatives of organizations upon which rest a considerable part of the responsibility for the safety of thousands of millions of dollars of invested capital, to take our story to the people, to draw pictures and diagrams to show the why and wherefores—the basic philosophy of the trade association—to sell to the public the fact that the trade association is indispensable to its own welfare?

Such a publicity campaign could be made absorbingly interesting to the lowest as well as to the highest. The appeal to self interest is the strongest to be made. I would advocate publicity for the very definite savings effected by the public by standardization of both products and production, and the resulting reductions in cost and price which follow intelligent cost discussions made possible by the use of the same cost finding system; I would advocate the use of clear illustrations of how trade associations are working out the great problems of distribution by which articles are readily and economically obtained; I would point out the efforts which are being made by trade associations to teach the public the true economy, practical and esthetic, in the uses of their products. Most important of all, I would advocate that the immense advantage of stabilizing economic conditions should be definitely and continuously set forth; that the greater the stability in economic conditions the greater will be the stability of business; that stability of business is the basic necessity for the steady and continuous prosperity and happiness of all of the people; and that the fundamental function of the trade association is to steady or stabilize business.

If ways and means could be planned to collectively and efficiently carry our great message to the public, the time would not be far off when the present distrust would be replaced by confidence and encouragement. At that time we would begin, with every legitimate aid from a wise and just government, an era of industrial efficiency, the like of which the world has never seen.

R. A. I. WILL MEET IN CHICAGO

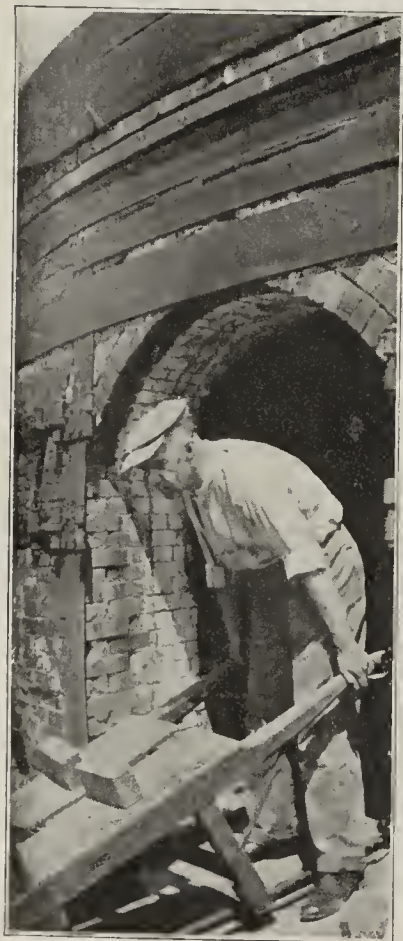
Discussion of important problems relating to accounting in the production of refractories will take place at the meeting of the Refractories Accountants' Institute at the Drake Hotel, Chicago, Ill., October 23 and 24, 1922. W. J. Westphalen, Laclede Christy Clay Products Co., St. Louis, representing the committee on overhead, will present arguments for or against, including the current month's overhead in costs of the current brick output.

Report of the committee on depreciation and obsolescence, by M. D. Worthington, Crescent Refractories Co., Curwensville, Pa., will be heard. R. E. Byrne, Ashland (Ky.) Fire Brick Co., will make a report on factory labor costs. Another report to be heard is that by F. W. Neuroth, Jos. Soisson Fire Brick Co., Connellsville, Pa., representing the committee on raw material labor costs. Other interesting features of the meeting will be book reviews by H. L. Grohne, American Refractories Co., Pittsburgh, Pa., and A. Henderson, Evans & Howard Fire Brick Co., St. Louis, Mo., the keynote of these discussions being the use of accounting in the detection and elimination of waste.

Perpetual inventory and other forms for keeping track of production in its various phases will be discussed by E. E. Myers, Ironton (Ohio) Fire Brick Co., and J. G. Power, Elk Fire Brick Co., St. Marys, Pa. In addition to those mentioned above there will be other features of considerable interest to the attendants.

BAUXITE OUTPUT FALLS IN 1921

The production of bauxite in the United States in 1921 was 139,550 long tons, valued at \$889,800, according to the U. S. Geological Survey. This is not much more than one-fourth of the production in 1920, which was 521,308 tons valued at \$3,247,345. This great decrease was due to lack of demand from all consuming industries. Taking into account both exports and imports the apparent consumption in the United States was 161,195 gross tons in 1921, valued at \$565,604. The apparent consumption in 1920 was 531,946 tons and in 1919, 364,947.



"BOB" FINDLAY "WORKS" ON A BRICK YARD

"Blessed are the horny hands of toil!"—Lowell.

It is a far cry from a perfectly appointed office in America's first city to a plebian brick plant a great deal more than "forty-five minutes from Broadway," but you never can tell where you will meet "Bob" Findlay, president of the Hay Walker Brick Co., New York, and vice-president of the Atlantic Brick Manufacturing Co., Mays Landing, N. J.

"Bob" is a well known and jovial figure at every worthwhile gathering of brick manufacturers and dealers. Formerly president of the Face Brick Dealers' Association of America, he has established a contact with many of America's foremost face brick retailers and manufacturers which will not easily be forgotten.

Some rogue, knowing "Bob's" aversion to work, caught him red-handed "laboring" at a brick plant the other day. The accompanying pictures tell the story. If you have ever pushed a barrow load of brick along the uncertain runway of a brick plant, you can sympathize with the size of "Bob's" load. On the other hand, at the present price of coal, we can readily understand why it might seem advisable to transport it around on a fire shovel.

Seriously, it is a patent fact that a man who has brains and grit and get-up enough to reach "Bob's" present position in the brick business, is worth all the praise he can possibly receive. We take our hat off to Robert L. Findlay, premier brick merchandiser.



"Better Homes" Idea Made Real

Oakland, Cal., Exposition Uses Ten Full-Sized Homes as Models of Convenience, Tastefulness and Beauty

A COMPLETE HOME EXPOSITION using actual full sized houses as models to carry the message of home building has been promoted in Oakland, Cal. This exhibition was known as the California Complete Homes Exposition, and consisted mainly of a display of ten model homes, fully furnished and equipped. The exposition was opened September 28 and continued for three weeks, the entire display and entertainment being free to the public.

Instead of hundreds of booths, each displaying just a small part of the material necessary to complete a home, the California Complete Homes Exposition combined all individual exhibits into the completed product. The model homes offered the public an opportunity to actually inspect the practical use to which the building materials are put.

Houses Are Models of Charm

The exposition in Oakland had a two-fold purpose. The first was to demonstrate the beauty and convenience of a home site in Oakland, located in a high class residential district and situated within easy communication distance with San Francisco. The second was to show how it is possible to make the house a home of charming design, tastefully furnished, and equipped with all modern conveniences. To bring these messages home to the public, each of the ten model homes was completely furnished from the attic to the basement, and each was designed to be an object lesson in what a home should be. The exteriors of the houses were of different types of materials, including brick, hollow tile, stucco, plaster and wood construction. The floor plans, furnishing and exterior design of each of the houses were different, offering the public suggestions of a variety of styles and types.

One of the outstanding exhibits was a Dickey Mastertile home, built of hollow tile and faced with red ruffled brick.

This house represented one of the highest types of permanent construction, combining the desirable features of strength, fire resistance and comfort. In addition to the home built of Dickey Mastertile, there was an exhibit showing the structural details of hollow tile wall construction. The brick and tile used in the construction of this home were supplied by the California Brick Co.

The practical value of an exposition of this nature probably far eclipses that of the Own Your Home Expositions which have come to be an annual feature in many of the Middle Western and Eastern states. The advantage of exhibiting equipment and materials in actual use lies in the fact that it is much easier for the layman to decide as to the beauty and practicability of the materials that he is interested in. Prospective home builders and home makers found in this exposition all the ideas they were searching for, with the additional advantage of seeing these ideas in actual use.

Only Exhibit of Its Kind

The Oakland exhibition is the only complete home exposition ever held where the exhibits actually consisted of "regular" homes. In addition to the building materials display, each house is completely equipped with every domestic labor-saving device to show the housewife how comfortable a real home may be, and how the work of taking care of a home may be made easy.

The exposition is one of the chief reasons why the "Build Now In Oakland" slogan is being heeded by the people.

Other clay products exhibits besides those used in the Dickey Mastertile home were the plumbing fixtures, many of which were supplied by the Sanitary Manufacturing Co., and the tile roofing, which adds so much to the beauty of a home. The roofing tile were supplied by Gladding, McBean & Co.



Part of the Exhibit of the California Complete Homes Exposition Which Was Held in Oakland for Three Weeks Starting September 28. Ten Complete Homes Were Built and Furnished Thruout with the Most Modern Home Equipment. The Houses Shown in the View Above Were Some of the Plaster and Stucco Structures on Exhibition.

At the Left Is a View of the Beautiful Home Constructed of Dickey Mastertile Supplied by the California Brick Co. Above Is the Display Which Showed the Public How Houses Constructed of Hollow Tile and Brick Are Erected. The Exposition as a Whole Proved a Mighty Stimulus for Home Building and Owning.

FINE CERAMIC MANUFACTURE



A Department Devoted to Practical Problems in the Manufacture of Higher Grade Ceramic Products Such as Whiteware, Including Electrical Porcelain, Floor and Wall Tile, Sanitary Ware, etc., as Well as Stoneware, Terra Cotta, Special Refractories and Other Articles Where High Grade Clays Are Employed in Their Fabrication.

CONSIDERING CLAYS OF CHINA FOR EXPORT

SEEKING for a source of raw material that will permit a reduction in prices now prevailing in the United States for pottery, the attention of American manufacturers has been invited to the possibility of obtaining supplies of high grade kaolin from China by J. Morgan Clements, of the Department of Agriculture, who recently concluded investigations on this matter.

Most of the kaolin imported into the United States comes from England and none from China. The cost of this clay has risen in England, according to quality and degree of preparation for the market, by 139 to 225 per cent. in 1920 over pre-war costs, which increase is reflected in higher prices to the American potter and in retail prices to the consumer.

U. S. Has Few Deposits of Good Clay

While clay in its ordinary form is distributed widely throughout the world, the purest form—kaolin—is restricted in its occurrence in large quantities. In the United States the relatively few deposits of known commercial value are for the most part in the southern states, altho California, Colorado, Nevada and Vermont, have important deposits and are producers of kaolin.

It is probable that a thoro investigation would disclose large reserve kaolin resources in the United States. Even so, the question would arise as to their commercial value under normal conditions, that is, ability to compete in the domestic market with imported kaolin, for even the stimulus of the demand during the war, when American potters had difficulty in supplying their needs from foreign sources, did not result in a marked increase in the output of clay in the United States.

Shipping and trade conditions and the demand for special qualities of material also may continue to cause the United States to import kaolin even tho an ample domestic supply may become available.

China's Clay Not Handy for Export

A detailed study of the kaolin deposits of China will result in the finding of deposits more favorably located to supply the markets of today than those now utilized in the ancient Chinese centers, in the opinion of Mr. Clements. In the interior of the province of Fukien, especially, there are several undeveloped kaolin deposits that appear promising in size and quality, and doubtless a search would disclose others more favorably located with respect to transportation than these.

The Chinese, so far as known, first made porcelain during the Han dynasty from B. C. 210 to A. D. 220. In A. D. 1004 the Emperor King Teh established the imperial potteries at a place in the province of Kiangsi, south of the city of Kiukiang, on the Yangtze River, which received the name of King Teh Chen, and has ever since remained the chief center of the ceramic industry of China. In the earlier centuries only white and colored porcelains were made. Then about A. D. 1268 decorative painting of porcelain was introduced. In recent years potters of this district have begun to produce foreign styles of porcelains. There are reported to be somewhere near 150,000 potters employed. The clay from which the porcelain is made is, according to von Richthoven, a high-grade sedimentary clay.

Industry Centers Around Deposits

The next porcelain center of renown is Te Hua, in the interior of the province of Fukien, 50 miles due west of the coast city of Hing Wah. This center has specialized largely in white porcelain statuettes, with other articles in white or with blue patterns, but has gone more recently into the production of foreign-style porcelain painted in various colors. Te Hua uses a high grade of kaolin which occurs in great quantity in the immediate vicinity.

The third pottery center is Shekwan, near Canton, in the province of Kwangtung. This is a comparatively new center, the industry having been established there about 700 years ago. The highest grades of porcelain are not made in Shekwan proper, but are produced in Kochow, a small town in the same district. High-grade clays obtained in this locality are chiefly used, but it is stated that some kaolin is brought in. For a long time foreign shapes have been made here for the export market.

Pottery Made All Over China

The best grades of porcelains are manufactured at the above places, but ordinary pottery is made practically all over China and in traveling in the interior one frequently passes thru local pottery centers where earthenware bowls, teapots, vases, cuspidors, and so forth, are produced. All of the most important plants in which the highest grade wares are made and which use the best grades of clay and kaolin are situated in southern China in the great area south of the Yangtze river. In many respects this area is comparable with the area embraced in the southern states of the United States, especially as regards temperature and rainfall—the important factors which influence the alteration of the rocks from which kaolin is produced. South China is more favored than the southern part of the United States in the wide distribution of types of original rocks from which kaolin is derived and in the occurrence of large deposits of the clay.

Could Export from Kwangtung

The high-grade porcelains are made from kaolin obtained within short distances of the pottery centers but none of these kaolin deposits are conveniently situated for export. Transportation has not been in the past an important factor in the minds of the Chinese.

The most favorably located Chinese deposit of kaolin so far reported and which could serve as a source of supply for the foreign market, is in the province of Kwangtung. As there is no pottery industry in this locality the exploitation of the field should meet with hearty local cooperation, since it would offer continuous employment for a large number of people otherwise dependent entirely upon the intermittent local agricultural demand for labor.

In addition to the principal centers referred to by Mr. Clements, several promising deposits have been located and worked in Manchuria, the most important being at Fuchou, about 30 miles west of the main line of the South Manchuria Railway, just outside the limits of the leased territory. The annual export of Fuchou clay totals about 70,000 tons, and a considerable amount of this is used by the ceramic laboratory of the South Manchuria Railway at Dairen, which has established a high reputation for its products and now is exporting china wares to Japan and elsewhere. A plan has been proposed to connect Fuchou with the main line by a narrow gauge railway, which would cost about 1,000,000 yen, or to connect the quarries with the coast only a mile distant. A promising field producing high grade porcelain clay in fair quantities and which now is being investigated is located less than a mile north of Tumenling station on the Kirin-Changchun Railway. Another large center is located at Poshan in Shantung, where potteries have been at work for centuries.

* * *

MADDOCK WILL OPERATE DESPITE STRIKE

The Thomas Maddock's Sons Co., Trenton, N. J., manufacturers of sanitary earthenware products, has announced its intention to continue operations at its plant after November 1, on which date employes affiliated with the National Brotherhood of Operative Potters propose to leave the pottery, following similar action at other sanitary ware plants in different parts of the country. The situation has come about thru the expiration of contract, November 1, and the failure of manufacturers and employes to come to a satisfactory wage settlement. About 60 per cent. of the working force at the Maddock plant, or 350 operatives, are not members of the brotherhood and this number, with later additions, will be maintained. Commenting on the aspects of the case, A. M. Maddock, head of the company, says:

"Inasmuch as a majority of our employes do not intend to leave their positions, we feel that it is our duty to continue to run the plant. There is no need for anyone to look for employment elsewhere because everyone will have steady work."

* * *

NEW TARIFF SERIOUS FOR EUROPE

By Special English Correspondent.

Is Britain in danger of losing her pottery markets in the United States? This is a vital question that is causing no little anxiety there. For some years the United States has provided the largest and most profitable fields for pottery export houses in England. But there now are signs that the exporting potter's enterprise in this direction is receiving a check. There are several factors accountable for this. One, and an important one, is German competition. Another is the disturbed labor condition in America. Yet another is the new tariff in America destined to curtail European exports.

The new tariff is a disturbing factor for the pottery manufacturers in Europe, especially those specializing in export ware. The potters feel that the future of the United States pottery markets so far as they are concerned is rather obscure. They do not deny that it is causing them some concern. German competition is causing further anxiety since the German potters can cut out the English potter when it comes to ex-

port prices, owing to the low value of the mark. Apart from all this there is the domestic competition in America itself. And this applies to china clays as well as pottery.

Competition in domestic clays in America has increased considerably of late, according to the midland potters, altho, so far, America still remains the best market for the china clay export houses in England. This is accounted for by the fact that the English clay is of a better color, contains less grit and abounds in those peculiar qualities essential in a coating clay.

The china clay industry in general in Europe has suffered a setback, due to the influence of strikes in the United States on local shipping, and the limited use of china clay in factories and mills due to the urgent need of coal conservation. The pottery industry as a whole is only just getting back into its stride again after the August vacations when unemployment rose from 12 per cent. to 24 per cent. As it is some branches of the industry are reporting little business. In dinner and tea ware, for instance, the stimulus of new patterns is being found necessary by the potters before a demand can be created, since the traditional designs have lost their appeal entirely.

* * *

KAOLIN DEPOSITS IN THE EASTERN STATES

In the course of a survey of the kaolin deposits east of the Mississippi River, conducted by the United States Bureau of Mines in an endeavor to locate American clays that could be substituted for imported clays, it has been found that New Jersey white clays are finest in grain, then clays from various states in the following order: Georgia, Florida, Pennsylvania, South Carolina, Maryland, Virginia, North Carolina, and Mississippi. The different clays from Georgia, Florida, Pennsylvania, South Carolina and Maryland vary from extremely coarse to extremely fine clays. All the clays tested from Virginia, Delaware, North Carolina and Mississippi were coarse grained.

In investigations to determine the possibilities of improving the color of American clays after firing, it was found that 73 of the 80 clays tested burned to a fair white color, after refining the same by elutriation. A microscopic examination of the clays showed that the North Carolina, Delaware and Maryland kaolins were similar to the English kaolin in that they are composed of coarse crystalline kaolinite particles; clays from New Jersey, South Carolina, Georgia, Mississippi, Virginia, and Florida are composed largely of aggregates of fine grained kaolinite.

* * *

GERMANY SHIPS MOST WARE TO U. S.

Just what effect the strike in the general ware pottery industry will have on increased imports will be determined only upon the length of the suspension. According to statistics of the Federal Government for the last seven months, imports of ceramics from all countries were valued at \$6,314,056 as against \$6,927,519 for the corresponding term in 1921. This shows a decline in receipts of \$613,463. The imports from all countries for July last had a value of \$961,423 and for July, 1921, the value has been placed at \$941,414. This record shows that for the month of July there was an increase in imports of ceramics to the value of \$20,009.

When the seven-month term is taken into consideration, Germany, among all other countries selling ceramics to the United States, alone showed an increase over the corresponding term of 1921. The value of the receipts from Germany for seven months this year has been placed at \$2,857,699 and for the same term during 1921 at \$2,596,318, an increase of \$261,381.

Perhaps the heaviest loss in export business of any of the foreign countries during the last seven months is shown by Japan. During the last seven months in 1922 Japan shipped

ceramic wares to the United States valued at \$1,273,114, and for the same term during 1921 this business amounted to \$2,044,142, a loss in 1922 of \$771,028.

Taking the export business of Japan in ceramics to America, the imports for last July were valued at \$259,865 as against \$370,921 for July, 1921, or a loss this year of \$111,056.

England has been a rather heavy shipper of china and earthenware to the United States this year, the business being greatly in excess of that of 1921. Shipments of ceramics to America during the last seven months amounted to \$2,399,891, as against a record of \$1,594,076 for the same term last year, or a gain of \$805,815.

The July monthly record shows England shipped to American shores ware valued at \$292,258, as against a sale valued at \$33,799 in July, 1921, or an increase of \$258,459.

During July, 1921, the value of all ceramics received at American ports has been placed at \$941,414, and for July, 1922, the value reached \$961,423. Imports for seven months in 1921 were valued at \$6,927,519, and for the same term this year the valuation is placed at \$6,314,056.



WHITE CLAY MINING AT LANGLEY, S. C.*

The mine and plant of the Continental Clay Co. (formerly the Peerless Clay Co.) is located about two miles east of the Langley station. The ore is hoisted up an incline in 1¼ ton side-dump wooden cars to the drying shed. This shed, which is 200 feet long by 80 feet wide, opens on both sides and at one end, the mill forming the other end. The floor of the drying shed is of concrete; at heights of 12 and 24 feet above it are drying racks or floors, supported substantially by cross girders. These girders carry a loose floor of 3 by 6 inch slats about two inches apart to permit circulation of air.

The mine cars run in on tracks above the top rack and are dumped, the clay being spread in a layer 10 to 12 inches deep. As the clay dries the slats are pushed apart and the clay falls to the rack below; fresh clay is then dumped on the top rack. When the second rack of clay is practically dry, it is dropped to the floor and allowed to accumulate until it nearly reaches the rack.

When this plant was visited the clay was recovered from the floor by shoveling and was wheeled by barrow to the milling plant. A belt conveyor was being installed—along the length of the dry shed near its center—on which the clay will be shoveled and conveyed to the mill.

Produce Four Grades

By means of a large dry shed it is possible to keep separate the different grades of clay, and to have dry stock ready to fill any special order for any grade. Large storage capacity also makes it possible to operate the mill during periods of wet weather when work in the clay pits ceases. Four grades of clay are produced at this plant: Numbers 1, 2 and 3—graded according to the amount of grit, No. 1 being the best—and No. 4 being a pink clay from one part of the pit, which is used for a particular paper stock.

From wheelbarrows the clay is dumped into the hopper of a disintegrator, consisting of a small rapidly revolving toothed roll, with teeth running between stationary teeth or wings projecting from the side of the hopper bottom. This type of crusher, or breaker, would not work on wet clay, but is used only on air-dried material. The crushed clay is raised by a nine-inch bucket elevator to a bin which feeds a Bonnot grinding mill, fitted with specially designed beaters and liners. This mill grinds the clay by impact and attrition, not by rolling as in the Raymond roller mill. It is equipped with an air separator and fan delivering to a seven-foot cyclone collector, which in turn discharges to an eight-inch screw conveyor about ten feet long. The trough has four spouts

with gates from which the bags are filled. The bags are burlap or paper.

The excess air from the system escapes thru a small cyclone collector. The ground clay was not very fine, as small grains could be felt between the thumb and finger. Some material was apparently as coarse as 60 to 80 mesh.

Improving Continental Plant

The capacity of the plant was said to be eight tons per hour, but this capacity was probably never reached. A 50-horsepower motor operates the entire mill as outlined. Electric power is purchased from the hydroelectric company supplying the district.

Improvements were under construction at time of visiting. After their completion the flow of the mill sheet will be as follows: The 16-inch belt conveyor serving the dry shed floor will deliver to a 16-inch cross conveyor which delivers to a disintegrator similar to that used by the South Carolina Clay Co. An elevator then delivers the clay to a 6 by 30 foot indirect-heat dryer, which will be wood fired. The dried clay is raised by a bucket elevator to a V-bottom bin. Spouts under the bin feed a screw conveyor which delivers to the mill now in use, or to a five-roller high-side mill with a seven-foot separator equipped with an inside cone. The cyclone collector will deliver to a bin from which the clay will be bagged with an Invincible two-bag packer. This plant will require at least 100 horsepower, using the Raymond only. The rated capacity of the present mill will not be increased but the finished product will be higher grade. A standard gage track connects the plant with the main line of the Southern Railway at Langley.

Immaculate Kaolin Co.

The mine and plant of the Immaculate Kaolin Co. are located about ½ mile southeast of the plant of the Continental Clay Co. The mill proper is operated by a steam plant having one 50-horsepower engine. The cable excavator has its own boiler. From the pit the cars of clay are pulled up an incline to the drying shed which is about 200 by 60 feet and has three drying racks and a wooden floor. The dry clay is wheeled and dumped into a disintegrator similar to that of the Continental Clay Co. A bucket elevator raises the clay to a small bin feeding a pulverizer which is a two-hammer machine running at 2,300 revolutions per minute. The ground clay is exhausted by fan to a cyclone collector or a small bin.

To eliminate coarse grain, the exhaust dust shortly after leaving the mill enters an enlargement in a horizontal section which is hopped at the bottom and filled with a flap valve; when the weight of accumulated clay in the hopper exceeds the vacuum, the flap opens and discharges the clay back into the mill. This valve takes the place of the "inside cone" in the air separator system and seems to be fairly efficient.

Industry on Stable Basis

The bin below the cyclone collector delivers to a ten-inch by ten-foot screw conveyor fitted with bag-filling spouts. The clay is packed in paper or burlap bags. The excess air from the fan system is discharged to the atmosphere.

The product, which is unusually free from grit, is fluffy and fine, and is faint cream in color. The capacity of the plant is 2½ tons of ground clay per hour. The clay pits of this company were formerly self-draining; but a pump driven by gasoline is now used to dewater the workings. In the present pit, a spring has been struck that requires more or less continuous pumping. An extension of the spur to the Continental plant serves also the Immaculate.

Two other clay properties are developed in the district, but were not visited. In the district as a whole, considerable reserves of clay are yet untouched, hence the industry can be considered fairly stable.

*Continued from Brick and Clay Record of October 3, 1922.

Current Prices of Common Building Brick Six Inch Drain Tile and Hollow Building Tile

SINCE the publishing of the last list of prices in Brick and Clay Record of July 11 many changes have taken place. Common brick prices, especially, have been subjected to a general revision which in most cases was upward. The increases in the prices of common brick range from \$1 all the way to \$8 per thousand. The high mark of \$8 was reached in Syracuse, N. Y., where the price jumped from \$18 to \$26. What must be borne in mind, however, is that these prices are delivered-on-the-job and so a considerable percentage of the increase was undoubtedly absorbed in the journey from the plant to the job.

Drain tile prices during the last three months have remained fairly steady and changes have been both upward and down. In South Bend, Ind., the price jumped from four cents to eight cents and in Moline, Ill., the price rose three cents to fourteen cents.

Hollow tile has followed the natural flow of other building materials and prices on the whole have been substantially increased in the last three months. It is interesting to note that those cities in which the price raised are situated for the most part east of the Mississippi while the western section of the country has not raised its price.

	Common Brick Per M	Drain Tile (6") Per Ft.	Hollow Tile (5x8x12) Per M		Common Brick Per M	Drain Tile (6") Per Ft.	Hollow Tile (5x8x12) Per M
New Orleans, La.....	13.00	.12		Portland, Me. ....		.15	
El Paso, Tex.....	16.00	...	81.00	Boston, Mass.	22.00	.1862	
Houston, Tex.	14.00	.16	84.00@	Providence, R. I.....	28.00	.20	
Dallas, Tex.	10.90*	.20	75.00	Hartford, Conn.	16.00	.14	
Little Rock, Ark.....	12.50*	.15		New Haven, Conn.....	25.00	.125	
Oklahoma City, Okla.....	14.75	...		New York City.....	23.00	...	123.00
Cincinnati, Ohio .....		.09	90.00	Albany, N. Y.....	25.00	.155	200.00
Cleveland, Ohio	16.00	.072	80.00	Utica, N. Y.....	26.00	.0675	
Columbus, Ohio	18.50	.08		Syracuse, N. Y.....	20.00	.125	
Toledo, Ohio	15.50	.09	85.00	Oswego, N. Y.....	25.00	...	
Detroit, Mich.	17.50	.12	90.00	Binghamton, N. Y.....	22.50	.105	
Evansville, Ind.	15.00	.05	72.00	Elmira, N. Y.....	24.00	.10	
Fort Wayne, Ind.	18.00	.07	75.00	Rochester, N. Y.....			
Indianapolis, Ind.	17.00	.10	86.75	Buffalo, N. Y.....	18.00	.12	88.00
South Bend, Ind.....	19.00	.08	100.00	Jamestown, N. Y.....	25.00	...	110.00
Terre Haute, Ind.....		...		Allentown, Pa.	20.00	...	
Bloomington, Ill.	18.00	.08	75.00	Erie, Pa.	20.00	.095	90.00
Chicago, Ill.	12.00	.116	90.00	Philadelphia, Pa.	17.00	...	
Moline, Ill.	17.00	.14	53.00	Reading, Pa. ....		...
Peoria, Ill.	14.00	.11	53.00	Pittsburgh, Pa.	19.00	.12	98.00
Green Bay, Wis.....	18.00	.076	95.00	Scranton, Pa.	25.00	.14	
Milwaukee, Wis.	16.00	.09	92.50	Newark, N. J.....	23.00	.1675	100.00
St. Paul, Minn.....	16.00	.09	75.50	Paterson, N. J.....	20.00	.155	
Davenport, Iowa .....		...		Trenton, N. J.....	20.00	...	
Des Moines, Iowa.....	17.00	.12	75.00	Wilmington, Del.	22.00	...	
Sioux City, Iowa.....	16.50	...	75.00	Washington, D. C.....	19.00	.10	160.00
Kansas City, Mo.....		...		Baltimore, Md.	19.00	.14	
St. Louis, Mo.....	14.00	.13	65.00	Norfolk, Va.	18.00	.12	
Lincoln, Neb.	16.50	.09	70.00	Richmond, Va.	16.00	.15	
Denver, Colo.	12.00	...	85.50	Huntington, W. Va.....	15.00	.12	75.00
Butte, Mont.	17.00	...	15.00\$	Fairmont, W. Va.....	24.00	.095	95.00
Los Angeles, Calif.....	15.00	.0975*	100.00\$	Wheeling, W. Va.....	23.00	.09	80.00
San Diego, Calif.....	14.00	.14	120.00	Atlanta, Ga.	12.35	.14	
San Francisco, Calif.....	17.00	.065	108.00	Miami, Fla.	25.00	...	140.00
Portland, Ore.	17.50	.10	95.00	Tampa, Fla.	17.00	...	
Seattle, Wash.	15.00	.09	110.00	Louisville, Ky.	20.00	.07	94.70
Cheyenne, Wyo.	18.50	...		St. Petersburg, Fla.....	18.00	...	120.00
Winnipeg, Man.	18.00	.15	105.00	Lexington, Ky. ....		.12	
Toronto, Ont.	18.00	.11		Memphis, Tenn.	15.00	.09	110.00
Halifax, N. S.....	21.50	...		Nashville, Tenn. ....		.11	
Quebec, P. Q.....	18.75	.11		Birmingham, Ala.	15.50	...	115.00

Editor's Note.—The prices of the commodities listed above are reported as delivered on the job, and are, therefore, higher than the plant prices. These prices are obtained from a sister publication, *Building Supply News*, and are sent to this paper by dealers in the various cities listed. Brick and Clay Record will appreciate any corrections. The prices marked in heavy type denote changes from last list.

*Little Rock, Los Angeles, Atlanta, Dallas, f. o. b. cars.
\$Los Angeles, Heath tile; Butte, per ton at yard.
@Hollow tile, Houston, car loads.
†Quebec, common brick, f. o. b. sheds.

Cyclopedia News

Devoted to Enlarging the Usefulness of the CLAY PRODUCTS CYCLOPEDIA

Published by
INDUSTRIAL PUBLICATIONS, Inc.

407 S. DEARBORN STREET
CHICAGO, ILL.

IMPORTANT FACTORS IN BUILDING PLANT

1. Demand. Basis of size of plant.
2. Selling prospects. Basis of size of plant.
3. Raw materials. Availability and quality. Quality of water is very important.
4. Shipping facilities. Raw materials, fuel, market.
5. Power.
6. Labor.
7. Shipping facilities are dependent to a great extent on the size of the plant.
8. Fuel, quality, price, quantity, availability, and dependability are important.
9. Railroad competition is a good factor.
10. Water shipments are good when available.
11. Availability and value of plant.
12. Topography of land.
13. Taxes.
14. Dust and smoke nuisance.

These hints and suggestions found on page 136 are a sample of the advice for avoiding pitfalls in plant location, design and operation which can be found at numerous places thruout the book. If these points are followed the number of plants that annually discontinue operations will be reduced to the minimum.

PAPER LAYOUT USEFUL AND ADVISABLE

Very timely suggestions for making plant improvements and additions are shown on page 22. One of the suggestions is to lay out paper templates of the floor area or ground space that will be occupied by each piece of machinery or other equipment. Then a plat of the entire factory should be used and these paper templates or layouts moved around on the plat to determine the best grouping of the entire equipment. This is the system used by all good engineers unless they are duplicating a plant which has been in use and whose success has been shown. Page 22 contains many other valuable suggestions.

These suggestions are very timely for clay products manufacturers since this is the start of the season for making repairs and additions.

BUILDING OF STEAM DRYER MADE EASY

On page 163 we find some splendid data for determining the square feet of radiating surface of a steam dryer or dry room if we know the number of lineal feet and the size of the pipe. We also find the size of the main steam pipe and of the return that is advisable for different amounts of radiating surfaces on a basis of 30 pounds pressure.

We also find some data to the effect that a 100 H.P. engine will supply sufficient exhaust steam for 12,000 square feet of radiation and that 280 B. t. u. are radiated every hour from one square foot of radiating surface.

SPECIALS FROM THOSE WHO USED CATALOG SPACE

Despite all the precautions we took to avoid errors we find that at the top of the third column of page 109, under item No. 603, Steam Press, we incorrectly gave the address of the Toronto Foundry and Machine Co., as Toronto, Canada, when it should have been, Toronto, Ohio. We also omitted the name of the same firm as a manufacturer of item No. 32A, Barrow, Sewer Pipe, on page 4.

We sincerely beg the pardon of our readers for these errors and suggest that each make the proper corrections at once.

OUR COMMENT DEPARTMENT

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PRESIDENT
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SUCCESSOR TO R. MCMAMEE & CO.

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OWNERS, MINERS, AND DISTRIBUTORS OF THE CELEBRATED

MCMAMEE CHINA CLAYS

OFFICE AT
60 BROADWAY
NEW YORK
TELEPHONE BOWLING GREEN 4280

MINES AT
BATH, SOUTH CAROLINA

NEW YORK, August 29th, 1922.

Industrial Publications, Inc.,
407 South Dearborn Street,
Chicago, Illinois.

Gentlemen:-

I beg to enclose herewith check for \$3.00 in payment of bill of June 14th for one copy of "Clay Products Cyclopedia" and apologize for delay in sending same, which would not indicate my appreciation of this book.

The truth is that I waited until I could write you a letter expressing my appreciation of it which I take pleasure in doing in few words.

I have some idea of the immense amount of work required to gather and arrange this information. I have no words to express its value and usefulness to me.

I have read it turning here and there to subjects of most interest to me and now I am going to read it through from start to finish just as if it was a story.

I could not possibly state its value as a handy reference. It is certainly a fund of information and a book that no one in the ceramic or allied interests can possibly afford to be without and I certainly compliment you on its publication.

With best wishes

Yours very truly.

RSF:JF
ENC.

Questions and Answers

Best Authorities in Every Clay Working Branch Are Called Into Consultation—Their Advice Is Free to You, Thru These Columns

Address all communications intended for this department to "Editor Questions and Answers, care of Brick and Clay Record," Chicago

HOW TO MAKE RUFFLED BRICK

1,055. *California—We are making a wire cut stiff mud brick and desire to give its surface a ruffled appearance. Please tell us how to do this.*

We quote the following answer to a similar question published a few years ago in Brick and Clay Record.

"We do not know of any concern which makes an attachment for the purpose of roughening the surface of the clay bar, other than the shop that builds the machine which is supplied thru the Hocking Valley Products Co. of Columbus, Ohio. This machine makes the 'rug' brick, and is sold by the company mentioned to its licensees—that is, the machine is furnished at cost, but its use makes it necessary to pay a royalty of something like 25 cents per M. Rough surfaced face brick are made, however, in hundreds of plants, without the use of any special attachment, other than the placing of a series of wires at the mouth of the die. These wires are three in number, one being horizontal and two vertical. They are placed so as to cut about $\frac{1}{8}$ of an inch off of the top and each side of the clay bar. It is well to space the wires so that the vertical wires are at least one-fourth of an inch away from the horizontal wire, as this will give sharper corners to the two ends of the face of the brick. The wires should be stretched very taut, as otherwise they will bend and give the face of the brick a convex surface."

You could also make a rough surface brick by building a frame around the column as it comes from the die, and fixing pins of iron to extend thru this frame and touch the surface of the column. This will make a rough face brick. The machine spoken of as used by the Hocking Valley Products Co. is an equipment of this kind, but we advise you to write the Hocking Valley people first to determine whether or not you could make a machine for your own use without infringing on their patent.

* * *

WHERE IS MOST FACE BRICK MADE?

1,053. *Maryland—Where is the bulk of the face brick, especially buff color, manufactured—I mean in what section of the country? My idea is that most of the face brick sold in the east is manufactured in Ohio; if this is correct can you tell me approximately what percentage of face brick made in Ohio, or east of Pittsburgh, is sold in the east. By the east I mean the big markets of New York, Boston, Philadelphia, Baltimore, and so forth.*

Is it correct that there is no clay available for making face brick, especially the buff color, east of the carboniferous strata extending thru Western Maryland and Western Pennsylvania?

The majority of buff colored face brick is manufactured in Ohio and in Pennsylvania, especially along the Allegheny River. Kittanning, Pa., is perhaps the greatest buff brick center in the world.

It is quite true that there are no suitable shales available for making face brick and fire clay, from which buff colored brick are made, east of the carboniferous strata extending thru the mountain territory of Maryland and Pennsylvania.



More Clay from the Pit—

was needed so they looked for a more efficient and economical method of digging, and chose a One Man Excavator, which gives their plant plenty of material, besides keeping the costs down. Labor is scarce—increased production is necessary. The one man digger answers the call.

Furnished with traction wheel, or caterpillar tread, gasoline or electric power. Can be fitted with a $\frac{1}{2}$ yard clamshell bucket and used for unloading your coal. An ideal machine for stripping

Ask about it

The Bay City Dredge Works
BAY CITY, MICHIGAN

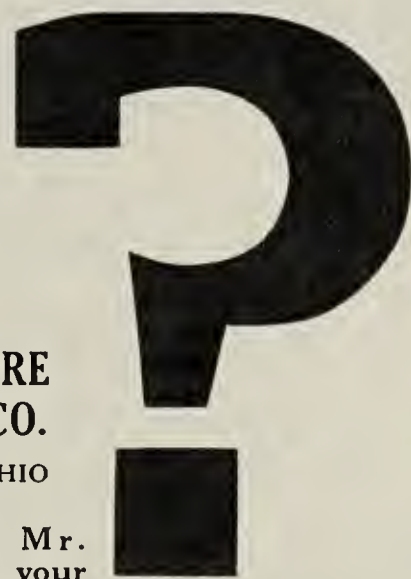
**What Do
the Readers
of the
Cyclopedia
Say About It?**

**NATIONAL FIRE
PROOFING CO.**

HAYDENVILLE, OHIO

After seeing Mr. Cooley's copy of your Clay Products Cyclopedia, I would like to have you send me two copies, one for Mr. Gould of the company and one for myself.

(Signed) A. R. STEESE



Industrial
Publications
Inc.
407 S. Dearborn
St.,
Chicago, Ill.

Enter my order for one copy of the CLAY PRODUCTS CYCLOPEDIA, the price to be \$3.00 I agree to send check upon receipt of invoice or return book in ten days after receipt.

Name

Address

City..... State.....

E. LINES, PRESIDENT
I. D. CONOVER, VICE PRESIDENT

PHONE 135

JAS. T. WHITING, SEC. Y. TREAS.
U. S. G. WILLIAMS, MANAGER

MT PLEASANT BRICK AND TILE MFG. CO. (INC.)

MT PLEASANT, IOWA Jan. 16th, 1922

The Brown Instrument Co.

Philadelphia, Pa.

Gentlemen:-

We are returning your letter of Jan. 12 so as to need less words to explain this letter.

We have been using a Brown Recording Pyrometer since 1912. It is evident from your letter that you have us on your mailing list wrong. We would be glad to meet Mr. McDermott and talk over the use of Pyrometers on round down draft kilne, but of course it would be too much of a waste of time and money for him to call unless he has business here with others.

Our Pyrometer is in good working order yet. We have only bought one new thermo couple during this time so that the upkeep has been remarkably small. We have three kilns on which we use these Thermo Couples. With best wishes for your business among clay workers we are,

Respectfully

Mt Pleasant Brick & Tile Mfg. Co.

Per. U. S. G. Williams Mgr.

Brown Pyrometers

Most used in the world

SUNBURY

AUTOMATIC CAR UNLOADER

Loads or unloads coal at the rate of 30 to 50 tons every hour. Only one man needed.

Let us tell you what other clay plant operators are doing with the Sunbury in saving time, money, and labor.

The Sunbury Manufacturing Co.
Sunbury, Ohio



The question you ask us concerning the percentage of face brick made in Ohio that is sold in the East is too comprehensive for us to answer. Perhaps if you write to the American Face Brick Association, People's Life Bldg., Chicago, they may be able to help you in securing this information.

✱ ✱ ✱

USE OF HEMATITE TO GET RED BRICK

1,054. *Virginia—I have a very mean clay to burn. I can burn it hard but it will not burn red. I would appreciate any information you can give regarding the kind of material to use to obtain a red color; how it is used; where I can get it and the cost per thousand brick.*

The material used chiefly in producing a red color on clay that burns light is hematite, which is a compound of iron. This material can be obtained from the Harshaw, Fuller & Goodwin Co., of Cleveland, Ohio. Hematite will cost about 3 or 3½ cents per pound, f. o. b. Cleveland.

If your discoloration is due to the presence of lime, in other words, if the discoloration is scum on the surface of the brick and the inside or body of the brick burns red, the source of trouble will be relieved by the use of a compound of barium, such as barium carbonate.

We can not give you any data on the cost per thousand of using hematite, since it depends entirely on the amount of material that you require to color your clay and the cost of this material delivered to your plant.

The method of applying hematite ore to your ware depends upon what process you use. In Connecticut and Hudson River districts considerable quantities of hematite ore, manufactured by the Clinton Mortar Colors Co. of Utica, N. Y., are used. Here the mortar color is mixed with the molding sand in the sander according to the proportion found by experiment to be best. Thus the interior of the molds are sanded with the mixture of sand and mortar color, and this adheres to the wet brick formed in the molds and during the burning becomes burned right in the brick.

Stiff mud brick have been colored with hematite ore thru the use of a small hopper placed at the mouth of the die, and this hopper kept filled with hematite ore. The hopper is arranged so that a small amount of ore adheres to the top and sides of the column, and a roller rolls it in so that the particles are held in the clay mass and will not drop off during drying.

✱ ✱ ✱

BOWEN WILL TOUR ENTIRE COUNTRY

Extensive tour of the country, with a view toward developing the membership of the organization, is now being taken by Charles A. Bowen, assistant to the president, of the Common Brick Manufacturers' Association of America.

The itinerary by Mr. Bowen covers the following cities. Leaders in the industry in these centers are cooperating with Mr. Bowen in arranging meetings, and stimulating interest in the work the national association is doing:

St. Louis	September 19	Salt Lake City..	October 23
Kansas City..	September 20	Denver	October 26
Independence	September 21	Colorado Springs	
Wichita	September 22	.....	October 25
Oklahoma City.....		Lincoln	October 27
.....	September 23	Omaha	October 28-30
Dallas	September 25	Sioux City	October 31
San Antonio..	September 27	Des Moines...	November 2
El Paso	September 28	Ottumwa, Ia..	November 6
Tucson	September 29	Gladbrook, Ia..	November 7
Los Angeles....	October 1	Sheffield, Ia..	November 8
Portland	October 16	Chicago	November 9
Seattle	October 17	Detroit	November 10
Spokane	October 19		

The Letter Box

A Place Wherein Letters
That Have General In-
terest Are Published
and Commented Upon

CAN WE GET SOMETHING FOR NOTHING?

S. H. Ivery, 1048 S. Kingshighway, St. Louis, Mo., recently sent us the following concise comment:

"Is the article in your September number, 'Light up your plant at no cost for power,' supposed to be funny or just stupid."

Yours truly,

S. H. IVERY.

The item to which Mr. Ivery referred appeared in the section recently begun, which is devoted to ideas for plant betterment. This particular item described a method of running a dynamo from the shaft of a fan by means of a countershaft. Since the items in this plant betterment section are presented in all seriousness for whatever practical value they may have, Mr. Ivery leaves us no alternative but stupidity.

To assume, of course, that there is no more power required to turn the fan shaft with the dynamo attached than without it would be an assumption of ignorance. In the field of mechanics as well as in real life one can not get anything for nothing. The essential part of the offending item was that by the use of the idea an extra piece of equipment could be saved. And this remains a fact despite the unfortunate wording of the heading.

The gist of the matter is that altho there is more power consumed the extra amount involved is such a small item that it does not enter into consideration when paying the monthly coal bill and in consideration of less equipment required.

In the Wake of the News

Being Brief Mention of a Host
of Interesting Happenings in the
Varied Fields of Clayworking

W. H. HOAGLAND DIES IN NEW YORK

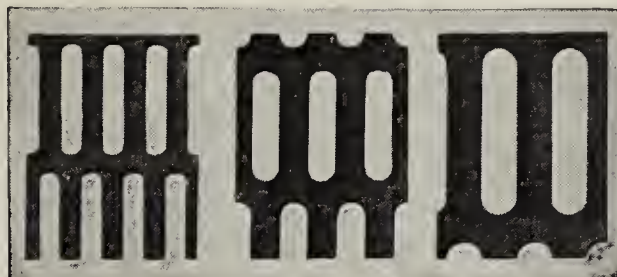
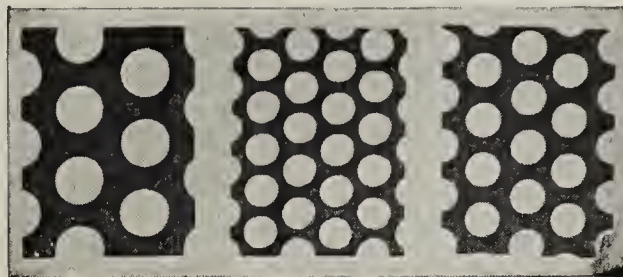
William H. Hoagland, New York City, formerly engaged in the pottery and chinaware industry, died, October 4, at the Peck Memorial Hospital in that city, at the age of 61 years. He resided in Brooklyn.

R. G. YINGLING STRICKEN BY DEATH

Rosswell G. Yingling, president of the Yingling-Martin Brick Co., Pittsburgh, Pa., died recently at the age of 69 years. Mr. Yingling was well known among clay products manufacturers, especially in the East and his death is a distinct blow to the industry with which he was connected. At the time of his death he was secretary and treasurer of the Kittanning Brick & Fire Clay Co., and a director of the Martin Brick Co., in addition to running the affairs of his own company.

Mr. Yingling was born in West Freedom, Pa., and when a young man moved to Clarion. There he was one of the organizers of the Clarion State Normal school and served as business manager of that institution until he came to

Perforated Steel Screens



**For Screening Clay, Shale, Sand,
Gravel, Stone and Cement**

All sizes and shakes of holes in metal of proper thicknesses to give the best screening results.

Sheets furnished flat or rolled to shape for revolving screens.

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635 N. Union Ave., Chicago, Ill.

NEW YORK OFFICE: 114 Liberty St.

WOULD YOU LIKE TO MAKE BETTER BRICK ?

USE R. & H. PRECIPITATE CARBONATE OF BARIUM TO PREVENT SCUMMING AND THEREBY PRODUCING BRICK THAT ARE RICHER AND DEEPER IN COLOR, CLEANER AND CLEARER IN APPEARANCE.

IF YOU ARE TROUBLED WITH SCUMMING, WRITE US TODAY FOR CIRCULAR.

THE
**ROESSLER & HASSLACHER
CHEMICAL CO.,**

NEW YORK

CHICAGO
BOSTON
PHILADELPHIA

TRENTON
NEW ORLEANS
PITTSBURGH

KANSAS CITY
CLEVELAND
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The Ideal Location For Your New Plant!

The territory along the Pittsburgh, Lisbon & Western R. R. is of high value to the Clay Products Manufacturer who contemplates the construction of a new plant.

Here is the Analysis:

Coal—No. 6	Clay—No. 3
Water.....2.200	Silica.....59.84
Volatile Matter.....35.540	Alumina.....25.96
Fixed Carbon.....54.705	Iron Oxide.....1.68
Sulphur.....1.725	Titanium Oxide.....1.60
Ash.....5.830	Magnesium Oxide.....1.08
	Sulphuric Anhy- dride.....Trace
	Alkali Oxides.....1.22
	Fusion Point.....3020° F.

Act at once. Write us today

The Pittsburgh, Lisbon & Western R. R. Co.
Lisbon, - - - - - Ohio

In Making Your Plans for Plant Betterment—

take full advantage of the immense possibilities for increasing production and reducing costs which result from the adoption of the Electric drive. Our generators and motors have an excellent reputation for successful operation under the most severe conditions encountered in the Brick and Clay Industries.

Send for list of satisfied users.

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CINCINNATI: UNDERWOOD ELECTRIC CO.
KANSAS CITY: W. T. OSBORN

Pittsburgh 20 years ago. He was prominently connected with civic developments in his home town of Wilksburg, a suburb of Pittsburgh, and that community in his death mourns the loss of a good citizen. He is survived by his widow, two sons and a daughter.

J. A. GLANDON, FIRE BRICK MAN, ILL

Distressing news from Mexico, Mo., has been received stating that J. A. Glandon, vice-president of the A. P. Green Fire Brick Co. has been stricken with an illness.

A further report from Mexico announces that Nick Lambert, for many years head burner at the A. P. Green Fire Brick Co., is away enjoying a vacation.

DEATH CLAIMS C. A. FORD

Charles A. Ford, a retired brick manufacturer of Columbus, Ohio, died at his home recently at the age of 76 years, following three years of ill health. He was a sufferer from pernicious anemia and his end was not unexpected. In 1872, he started a yard at Rome, Ohio, just west of Columbus. He continued at that place for some time and in 1880 formed a partnership with Windsor Atcheson and established a yard on the Harbor road. This continued up to the death of Mr. Atcheson in 1886 and then David Belnap entered partnership, which continued until 1890 at the death of Belnap. Since that time Mr. Ford was in business under his own name and has operated a number of yards in the section along Cleveland Avenue.

* * *

The Excelsior Brick Co. of Montgomery, Ala., will rebuild the brick plant that was recently destroyed by fire. Zimerman

SELL BRICK FOR \$1 EACH

"Sell-a-brick-day" when brick will be sold for \$1 each and up, will be held October 18 in Searcy, Ark., to raise funds for the Woman's Building for Science. It is desired to raise \$50,000.

LOS ANGELES GETS ANOTHER BRICK PLANT

Incorporation of the Santa Monica Brick Co., Los Angeles, Cal., has been announced recently. This company has organized with a capital of \$100,000.

BRICKLAYERS LAY 2,035 BRICK DAILY

A study of bricklaying efficiency was recently made in San Francisco by a member of the staff of the Industrial Association of that city. Four bricklayers, two of first-class ability and two second-class mechanics, working under the American plan, were observed at regular intervals for a week, and it was found that an average of 2,035 brick were laid daily per man. Three of the most reliable contractors in San Francisco claim that in 1921 the average production on plain walls was approximately 1,700 brick per day per man, and it is contended that the increased efficiency brought out by the recent test is directly traceable to the adoption of the American plan.

AMERICA'S OLDEST NATIVE BRICK HOUSE

Outside of Hartford, in the town of Rocky Hill, Conn., on the road from Withersfield to Middletown, stands an old landmark, known as the Robbins homestead. It is one of the oldest houses in Connecticut, and was built 155 years ago, of brick which were probably among the first manufactured in this country. The house has had an interesting history. It was built by John Robbins, and named the Duke of Cumberland Inn, in honor of that personage. As an inn it figured very prominently in the colonial period.

About eight years ago it was purchased by G. F. Matteson, who has retained the greater part of the Robbins family heirlooms and quaint furniture. Some of the unusual fea-

tures of the place are a huge fireplace in the rear of the main room, large enough to roast an ox, while a huge brick oven is a reminder of the old-fashioned welcome extended to tired travelers in stagecoach times.

The clay of which the brick were manufactured was taken from a bank in the pasture west of the house. Connecticut antiquarians maintain that this was the first house built of American-made brick, antedating by a few years an old house in Massachusetts which, it has been claimed, was the first house of American brick.

ORGANIZES FOR \$500,000

The Open Hearth Fire Brick Co., Wilmington, Del. has filed a charter declaring its intention to engage in manufacturing. Capitalization is \$500,000.

FLORIDA TO GET NEW PLANT

M. E. Ackerman is planning the establishment at Dade City, Fla., this year of a plant for the manufacture of brick and other burned clay products, it is reported.

FORM CLAY MINING COMPANY

Walden & Massengill, of McIntyre, Ga., have organized to mine clay for use of clay products manufacturers, it is stated. H. A. Walden and C. G. Massengill are incorporators.

PAVING BRICK STILL GOOD AFTER 22 YEARS

Down in Columbus, Ga., they are tearing up a brick street laid down 22 years ago and will use the old brick on the new street. The pavement had become rough and worn in spots so it was decided to take up the brick, lay a new sand cushion on the old concrete foundation and relay the old brick, turning them over. Altho this is interesting news it is nothing unusual and under ordinary circumstances a brick pavement is still very young at 22 years.

J. E. MINTER TALKS BRICK TO KIWANIS

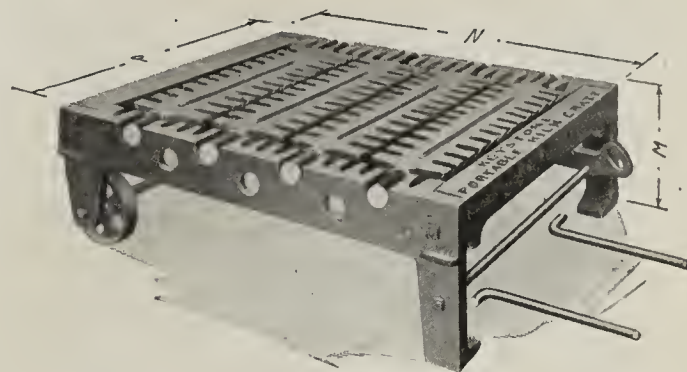
In an address before the Kiwanis Club of Columbus, Ga., J. E. Minter of the Dixie Brick & Tile Co., told in an interesting way some of the facts which make the history of brick a romantic one. He referred to the important role brick has played in the history of all nations, practically since the beginning of mankind. The first brick in America, he said were made in the New Haven colony in 1650. Mr. Minter also described the methods in use today in making the high class brick modern factories turn out.

KEELING-CASSIDY INCORPORATES

The Keeling-Cassidy Brick Co., a new retail and wholesale brick company organized in Atlanta (Ga.) recently as a partnership, has incorporated its business under Georgia laws. The incorporators named are W. G. Keeling, J. A. Cassidy and Roy L. Mitchell, all of Atlanta, and the capital stock is \$12,000. Both Mr. Keeling and Mr. Cassidy have been several years in the brick business in the southern territory, principally in the manufacturing end of the industry. The company has offices and sales rooms in the Candler building, Atlanta, Ga., and is handling wholesale and retail business in practically all of the southeastern states.

LACK OF CARS HOLDS BACK SOUTH

The car situation in the southeast is still very acute, and there is not much promise of improvement for another month. As a whole, however, brick men advise that the outlook is very good, as once the car situation becomes normal there will be plenty of orders to keep the southeastern plants in steady operation for several months. Construction activity is upward again, and the next eight months give promise of establishing new building records in the southern field.



More Heat Per Pound of Coal, Even Temperatures LESS COST

Competition and popular insistence for lower prices is forcing the clay products manufacturer to scrutinize his costs in nearly every department.

What of your burning, Mr. Manager? Are you getting maximum heat from each pound of coal?

Marion Portable Kiln Grates will help you to reduce your fuel costs, improve quality and save labor.

Ask for descriptive details.

MARION MACHINE FOUNDRY & SUPPLY CO.

P. O. Box 395

Marion, Ind.



Why Western Brick Co. of Danville Use Electric Steel Grate Bars—

1. Cost less.
2. They weigh from 4 to 5 lbs. less than iron.
3. Are free from breakage around yard.
4. Burn out much more slowly than iron.
5. Obtain double service because they can be reversed.
6. Easier to handle.

Write for Complete Information

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Indianapolis - - - Indiana

ATLANTA, GA

BALTIMORE, MD.

BOSTON

DETROIT

SAN FRANCISCO

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MORSE Silent Chain Drives are 98.6% efficient for small or large drives. No worry about belt trouble, slippage of power and loss of production where Morse Chain Drives are installed.

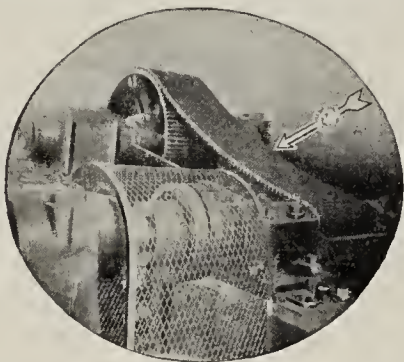
Write us if you have a transmission problem. We give engineering service without any obligation.

Drop a Card to the Nearest Morse Engineer

MORSE CHAIN CO.

Largest Manufacturers of Silent Chains in the World

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CHARLOTTE, N. C. CHICAGO CLEVELAND KANSAS CITY, MO

Salem Elevator Buckets



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This type of bucket is of one piece construction, with rounded contour throughout, smooth in form, durable in service and clean in handling and delivery of materials.

There are no seams in front nor on the ends, the laps being made on the back and bottom at the ends. On the back the laps are riveted or spot welded; on the bottom the end pieces are bent under and hammered tight.

The widest range of service is covered by a very full line of regular types and sizes and made in various gauges of steel, from the lightest practical for ordinary work to the heaviest necessary for the most severe duty.

Write for new price list.

THE WEBSTER MFG. COMPANY

4500-4560 CORTLAND ST., CHICAGO

Sales Offices in Principal Cities

Demand at present is considerably above the ability of the manufacturers to supply due to the car situation.

Reports received by the Federal Reserve Bank of Atlanta from a majority of the larger brick plants in this territory, and covering August production, show a slight increase over July in spite of the coal and strike situation, and considerably better than the August of 1921. The same factories report the outlook for September portending an increase over August, tho definite figures will not be furnished the bank before the latter part of October. The coal situation the last two or three weeks has been rapidly getting back to a state of normalcy, and no further trouble from this source is anticipated.

As to labor, the clay products industries reported to the bank an increase as compared with the previous month, the brick industries as a whole reporting a decrease.

DIXIE BRICK CO.—A HIGH TYPE PLANT

Few plants can be compared in matter of equipment, plant layout, and economy of production to the new Dixie Brick Co., which was constructed a year ago near Columbus, Ga. The owners of this plant are men experienced in the clay industry, who after satisfying themselves as to the quality of the clay on their property, decided to build the most economical plant possible. After considerable investigation they decided that from a business and practical standpoint the Minter System of plant construction was the most feasible. Thus the Minter System engineers were employed to design, erect and place in operation the complete plant. Everything from the drilling of wells and the installation of the boiler plant to the pavement of the kiln yard was entrusted to the Minter System engineers.

The spur line from the Central of Georgia Railroad divides at the entrance of the Dixie Brick Co. property, one track being depressed to bring the floors of the cars to the same level as the floors of the kilns, and the other graded up to ten feet above this level on the south side of the kilns to reach the level of the coal trestle. Bunkers are formed by the trestle piers which are constructed of concrete. Approximately two cars of coal are contained in each of the six bins thus formed.

The power house on this plant is of much interest. Heat which is drawn by the waste heat fan from the cooling kilns is used for the dryer, but a portion of it is by-passed to the boiler under pressure, and forced thru the grates. The economy of this system can be readily appreciated when it is considered that in a day's run for making 60,000 brick, the boiler uses only 4,500 pounds of coal, and that only one ton of coal is required for the motive power of the fans at night. The entire cost for power by this method is at the rate of 24 cents per thousand brick placed in the dryer. It is estimated that the cost of operation of a 12x30 Corliss engine, operating two fans, and developing 54 horse power, is but 40 cents an hour. The machine room equip-



General Plant View of Dixie Brick Co., Columbus, Ga. Note Arrangement

ment is driven by a 14x42 Corliss engine and consists of a large No. 6 brick machine, feeder, disintegrator, hoist, cutter and pug-mill, supplied by J. C. Steele & Sons. The Dixie Brick Co. claims that this equipment is particularly fine for the fabrication of ware out of the alluvial clay which is used. All the belting is Leviathan.

The dryer, which is the Minter recirculation type, is similar to the regular tunnel dryer except that the tunnels are built higher than usual so that the same dryer can be used for hollow tile if at any time it is desired to do so. Heat supplied entirely from cooling kilns by a 75,000 c.f.m. Sirroco fan is used in the dryer. Most clayworking estab-



Close View of Coal Storage Bins at Dixie Brick Co.

lishments using waste heat for drying purposes have as a rule an auxiliary furnace as part of their equipment. Not only is this objectionable on account of cost of installation and fuel consumption, but it is a cause of deterioration of dryer cars from combustion gases, and a coat of smut is deposited on the ware.

Another feature of this dryer is its simplicity of construction and operation. It enables the clay ware to be dried in a very short time, nine tunnels taking care of 60,000 brick per day. Each tunnel is equipped with a loose deflector on the top and sides, which enables better control of the dryer. A Brown recording pyrometer enables absolute control of the dryer temperatures.

The Minter System points out that one of the most remarkable features of the Dixie Brick Co. plant is the production of 60,000 brick per day with only nine 27-foot round down-draft kilns. The product is the very best possible to produce with alluvial material, and a strong demand has been experienced for it ever since the plant started operation. Not only are a small number of kilns required, but the fuel consumption is very low. Only 520 pounds of coal per thousand brick are required for burning.

This high production with small number of kilns and low fuel consumption is only possible thru the use of the Minter System. It is calculated that under ordinary systems 16 periodical kilns would be required for the same capacity. The great saving in investment for kilns is apparent.



Kilns and Their Close Proximity to the Coal Bins.

Building a New One? Remodeling the Old?

No matter which you are doing our service can be of benefit to you.

A sincere interest in your problem, together with common sense methods and a broad experience makes this service highly profitable.

Write for details

WALLER CROW, INC.
Engineers
COUNSELLORS IN INDUSTRIAL
OPERATION & FINANCE
327 S LA SALLE STREET
CHICAGO

Don't Allow Anything of Tangible Value to Go to Waste

Haven't you some machinery or equipment around your yard that somebody else could use to advantage?

You owe it to them to let them know about it, and you might just as well have the money that is tied up in it.

Or maybe there is something you need, and which another one of our readers could supply.

In either case a Classified Ad in BRICK AND CLAY RECORD will bring the desired result.

The rate is eight cents per word for one insertion, and six cents per word for each additional Insertion. Minimum charge, \$1.00.

DESIGNED TO WORK



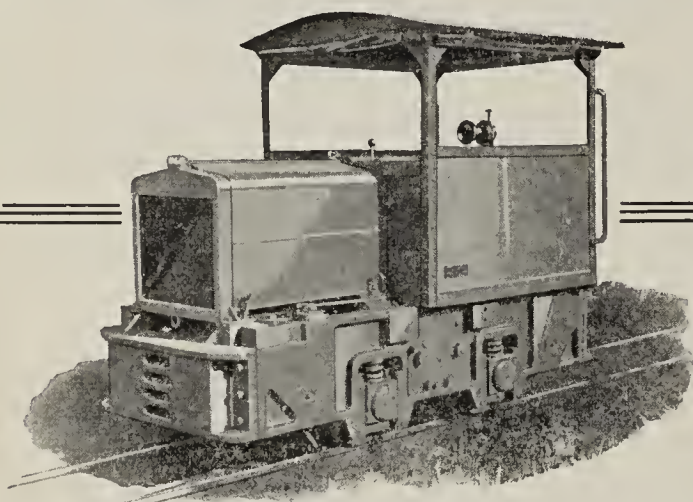
BUILT TO OVERWORK

WHEN IT COMES to HAULING

The new Whitcomb is the job for your pit. Equipped as it is with a Wisconsin overhead valve motor, removable radiator core, roomy cab, allowing clear vision in all directions, and other marked improvements, it naturally leads the field of gasoline locomotives. Let us show you where a Whitcomb will reduce your hauling costs.

Write for full description

GEO. D. WHITCOMB CO. Rochelle, Ill.



TORONTO

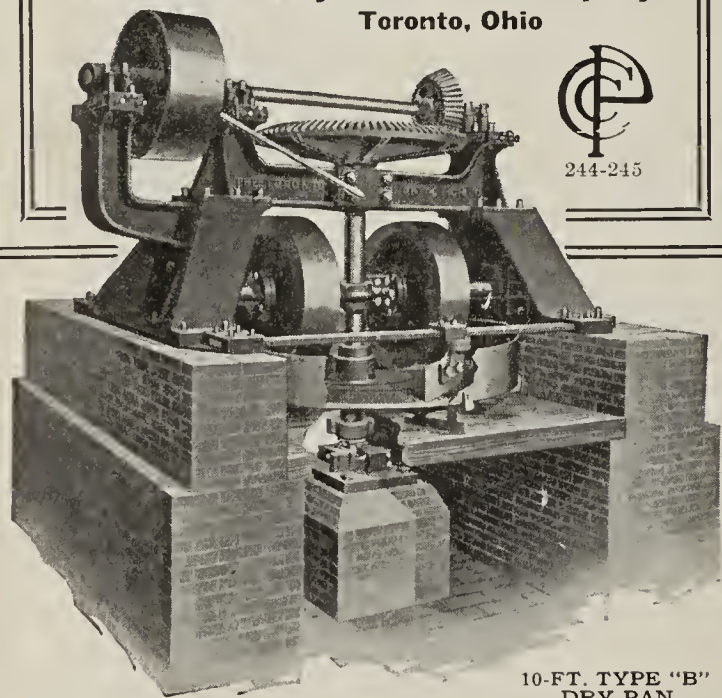
CLAY PLANT MACHINERY

Dry Pans	Wet Pans
Sewer Pipe Presses	Clay Conveyors
Clay Elevators	Sewer Pipe Dies
Pug Mills	Barrows
	Trucks

Toronto Foundry & Machine Company
Toronto, Ohio



244-245



10-FT. TYPE "B"
DRY PAN

Brown recording pyrometers are also used on the kiln, which enables perfect control of all burning operations.

Special care was taken in the kiln construction, and it is estimated that their life will be fully 25 years. The crowns are insulated on the outside with eight inches of loam, put on wet, then packed tight and cemented over with one course of brick.

A further evidence of the perfection of the plant design, besides those of the low operation cost, economical burning and drying, is that of the kiln yard. The entire plant has been paved with brick, and paved carefully so that no matter how much it rains there will be proper drainage. It is claimed that this pavement has already paid for itself in the greater efficiency in moving equipment and products about the plant.

CHICAGO RETORT WANTS RATE CHANGED

The Chicago Retort & Fire Brick Co., of Ottawa, Ill., has filed a complaint with the Interstate Commerce Commission protesting against alleged excessive, unjust, unreasonable and prejudicial rates on brick from Ottawa to Chicago, as compared with rates from St. Louis to Chicago. The company asks that the commission issue a "cease and desist" order requiring establishment of just and reasonable rates on brick from St. Louis and Ottawa.

H. E. RISHER FORMS OWN COMPANY

The Risher Fire Brick Co. has established offices and warehouse facilities at 18th and Canal Sts., Chicago, Ill. The firm will carry a complete stock of high grade refractories. Special attention will be given to special shapes.

H. E. Risher, president and treasurer, has previously been with the Chicago Fire Brick Co., Evans & Howard Fire Brick Co., A. P. Green Fire Brick Co., Harbison-Walker Refractories. He has had 19 years of study and practical experience in fire brick use. H. O. Engstrom, secretary of the new concern, is also an experienced fire brick man. The Risher Fire Brick Co. is capitalized at \$40,000.

INDIANA DEMAND CONTINUES BRISK

From all sections of Indiana are coming cries for common and face brick. Up to the present time the usual fall building slump has not been noticed and especially is this true in the larger industrial cities, where in some cases the demand for more construction is on the increase. The car situation is beginning to make it more and more difficult to get shipments thru from the plants to the contractors. The volume of public work continues good and factory representatives in Indianapolis predict a steady demand until late in the winter, especially if the winter is such that brick may be laid until late. Prices show no indications of dropping. Representatives of hollow and drain tile manufacturers say this has been one of the best seasons they have had. Drain tile makers expect Indiana farmers to carry their drainage plans well up into the winter.

HOBART PLANT AFTER GARY TRADE

The Kulage Brick Works, a large face brick corporation of Hobart, Ind., has been carrying on an extensive advertising campaign in the Gary, Ind., papers in an endeavor to create a better demand for its face brick in that city. While for 30 years the Kulage Brick Works has been selling high grade face brick thruout the Central States, Gary was allowed to develop without a serious attempt being made to sell brick in that city. As a result the better grade face brick manufactured by the Kulage plant are not used in the number their quality and proximity to Gary warrant, altho the common brick is in good demand. It is to amend this condition that the advertising campaign is being waged. It will no doubt bring results, for Hobart, the home of Kulage brick, is but eight miles from Gary, an inexpensive distance

for trucking. Kulage brick are sold in Gary, delivered on the job, at \$14.50 to \$21 a thousand.

E. A. Morse, of Gary, the president and manager of the company for the past three years, has developed and completely modernized the Kulage Brick Works since he has been in charge of its operations. During the recent coal and rail strikes, a change was made in the process of burning. Oil, in place of coal, is now used, and with better results. The Kulage plant operates all year. When running at full capacity it manufactures more than a million brick a month. The plant is known as one of the largest and most efficient brick concerns in its section of the country.

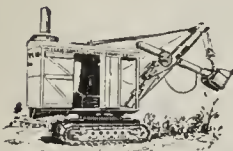
Mr. Morse reports having had a very brisk spring season. Many orders were refused because the demand for brick was so great. At the present time business is a little slack, but there are all indications of a booming trade this fall and winter.

CLAIM INDIANA RATES ARE EXCESSIVE

Notification of a suspension of the intrastate freight rates on brick in Indiana, which carriers proposed to put in effect October 16, have been prepared under the direction of the Indiana public service commission as a result of a complaint from the state Chamber of Commerce that the rates now in effect were not in compliance with an order issued by the interstate commerce commission on April 4, which directed the railroads to seek an equitable adjustment of the rate situation both for Indiana and Illinois. Authority for fixing the tariffs is vested in the public service commission, as the state's rate making body. It is asserted in the complaint that the intrastate rates on brick in Indiana were 15 to 30 cents a ton in excess of those in effect from this state or from points in Indiana to points in Illinois for the same mileage. An investigation of the brick freight rate situation in Indiana has been proceeding several months under direction of a committee composed of E. C. Hervey, of the Hy-Tex Company of Indianapolis; G. B. Luekett, brick manufacturer of Crawfordsville, and Frank R. Hale, manufacturer from Terre Haute. A hearing is to take place before the public service commission November 2.



“No Shovel can beat the
‘A’ ERIE for a clay pit”



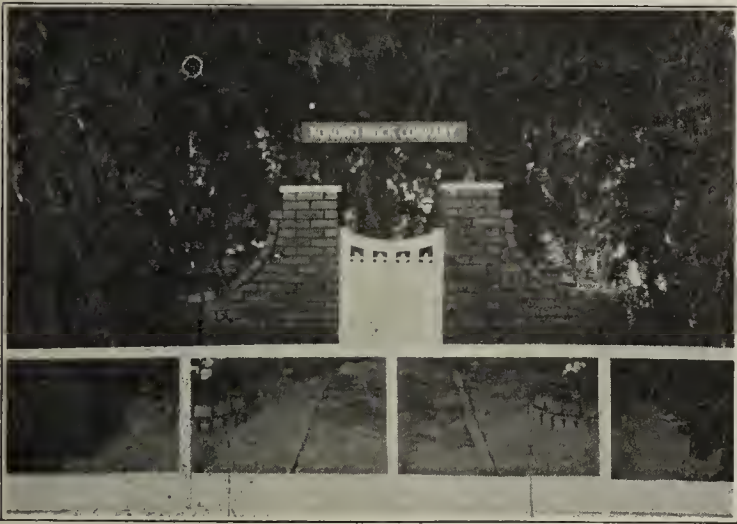
ERIE Shovels can be had either with broad tired traction wheels, standard gauge car wheels, or on the ERIE lubricated caterpillar type mounting. All easily interchangeable on the same truck frame.

Writes G. W. Isenhour & Sons—

“We have been digging stiff pipe clay with our 13-ton ERIE Shovel for the last 18 months, and its low cost and ease of operation have proven it an excellent machine for our work. The ‘A’ ERIE is giving us most satisfactory results”—G. W. Isenhour, Pres., G. W. Isenhour & Sons, Salisbury, N. C.

The Type “A” ERIE often does the work of a much larger shovel and saves you money both in first cost and operating cost. We have an interesting bulletin showing just what the “A” can do on clay and shale excavation, as well as many other classes of work. Write for Bulletin B-22.

ERIE STEAM SHOVEL CO.
Formerly Ball Engine Co., Erie, Pa., U. S. A.
Builders of ERIE Steam Shovels and Cranes



Kokomo Brick Co.'s Exhibit at a Recent Indiana Exposition.

IOWA COMPANIES WANT FAIR RATES

The Rockford (Ia.) Brick & Tile Co., Sheffield (Ia.) Brick & Tile Co., and Hampton (Ia.) Brick & Tile Co., have filed a petition with the Interstate Commerce Commission asking for the establishment of just, reasonable and nondiscriminatory thru rates on brick, hollow building tile and drain tile from Rockford, Sheffield and Hampton, Ia., to destinations in Wisconsin, Minnesota, North Dakota, South Dakota, and Northern Nebraska and Iowa.



Send For This Book

if interested in
WIRE ROPE
Protection

It tells a story of progress that should interest every user of Wire Rope—ask for it.

It describes and illustrates the ropes with the **Telfax Marker**—the greatest advancement in the manufacture of wire rope in recent years.

Write us today for your copy and let us quote you on your present or future requirements of this super-quality rope.

Williamsport Wire Rope Company

Main Office and Works:
WILLIAMSPORT, PENN.

General Sales Office:
Peoples Gas Bldg., CHICAGO

“the fastest growing wire rope plant in America”

THIS WINTER

When winter sets in—and the thermometer begins to drop—when the snow falls and colder winds blow—how are you planning to hold even temperatures? Will they fluctuate with the weather, or will you have perfect control?

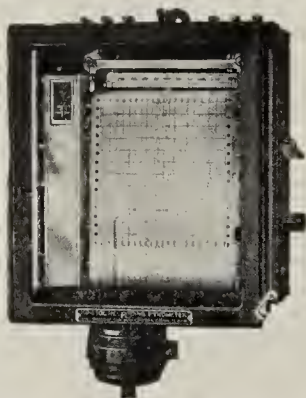
Bristol's Pyrometers afford a perfect control of all temperatures up to 3000° Fahrenheit. They accurately indicate and record, thus giving your burner immediate warning in case of sudden drop or rise in heat.

Ask for our latest catalog
AE 1401—the most complete pyrometer catalog ever published

The Bristol Company

WATERBURY

CONNECTICUT



STEVENSON

DRY PANS

WET PANS

ROLL CRUSHERS

SEWER PIPE PRESSES

SEWER PIPE TURNERS

TILE PRESSES

PRESS FEEDERS

CRUSHER FEEDERS

PAN FEEDERS

BUCKET ELEVATORS

GRAVITY ELEVATORS

BRICK BARROWS

TILE BARROWS

SEWER-PIPE BARROWS

GIGS

ETC.

THE
STEVENSON CO.
Wellesville Ohio

Western Sales & Engr.
Office

801-802 Monadnock Bldg.
Chicago, Ill.

Bulletins
on
Request

Electric motors with a combined horsepower of 325 have been installed at the new plant of the Noll Brick & Tile Co., Wichita, Kans.

BETTER HOMES SHOW IN LOUISVILLE

Starting October 23, a Better Homes Exposition, at the Jefferson County Armory, Louisville, Ky., will be on, with about 100 exhibitors of building material, miniature homes and so forth. Several of the brick men will have exhibits.

FIRE BRICK DEMAND INCREASING

The Louisville (Ky.) Fire Brick Works is fairly busy, running three days a week or better at both of the Kentucky plants, and is now getting cars at both Grahn and Louisville.

LOUISVILLE PLANTS TO OPERATE ALL WINTER

According to brick and tile manufacturers in Louisville, Ky., business is more active than at any previous time during the year and the general outlook points to big business over the winter and spring. Indications are that if brick plants can secure fuel they will operate as close to capacity as possible all winter. The demand for hollow tile has opened up considerably, due to the fact that the big commercial and industrial jobs are just reaching the stage where they will take material.

COMPANY FORMED AT MOBERLY, KY.

Colored pottery specialties will be made a leading feature by the Madison Brick & Tile Co., which has been formed to erect a plant at Moberly, Ky. The company also proposes to have a production of about 25,000 building brick per day, and to enter the building tile business.

DRAIN 30 ACRES FOR DEMONSTRATION

A 30-acre tile drainage system, designed, laid out and contracted for and constructed by the drainage section of the division of agricultural engineering of the University of Minnesota is the first project of its kind in Aitkin County, Minnesota. The system was installed as a cooperative demonstration project. The tile used was a surface clay, hard burned tile.

BRICK LOSING FAVOR IN ST. LOUIS

Brick seems to be passing as a paving material in St. Louis, Mo., which several years ago was known as a "brick pavement" city. In the tentative 1923 street building program of approximately 60 miles of thoroughfares but five miles will be paved with brick. The spring budget calls for 26.6 miles of street paving of which but 2 miles will be brick.

VANDALIA FREIGHT RATES UNFAIR

Freight rates on fire clay, in carloads, from Vandalia, Mo., to St. Louis, Mo., moving interstate have been found not unreasonable but unjustly discriminatory and unduly prejudicial against the Walsh Fire Clay Products Co. by the Interstate Commerce Commission. The Walsh Company is not shown to have been damaged by such discrimination in the past and reparation was denied, but a basis of rates for the future has been prescribed.

FAIRCHILD TO DOUBLE CAPACITY

Some time ago Fairchild Bros. of Endicott, Neb., doubled the capacity of their plant to take care of the greatly increased demand for their product. This year the company has been unable to keep up with the orders coming in and is several months behind in shipments. Plans are being made to again increase the capacity of the plant 100 per cent. This work will probably be begun when the slack season sets in.



ACCURACY

Predetermination of quality in the mixing and tempering of your clay and 99.75 per cent. accuracy in tempering and weighing soon amounts to real savings for the manufacturer.

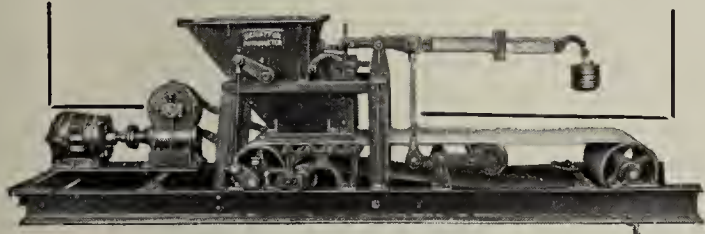
The Poidometer eliminates waste and extra labor, eliminates cracked ware in the dryer, and will weigh your clay at any rate of speed (1½ pounds to 21,000 pounds per minute).

Let our engineering staff cooperate with you

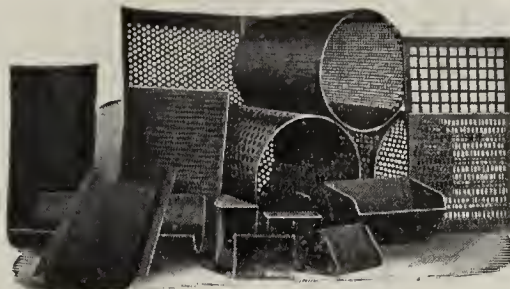
SCHAFFER ENGINEERING and EQUIPMENT COMPANY

2828 Smallman Street

Pittsburgh, Pa.



HENDRICK SCREENS FOR ALL PURPOSES



ELEVATOR BUCKETS CONVEYOR TROUGH and FLIGHTS STACKS, TANKS, GENERAL SHEET and LIGHT STRUCTURAL WORK LIGHT AND HEAVY STEEL PLATE CONSTRUCTION

*Ask for your copy of the
Perforated Metal Handbook*

HENDRICK MFG. COMPANY CARBONDALE, PA.

NEW YORK OFFICE: 30 Church St.
PITTSBURGH OFFICE: 544 Union Arcade Bldg.
HAZLETON, PA., OFFICE: 705 Markle Bank Bldg.

"Dumps right into pug-mill just when needed"



The Raisclay Brick Company uses a Clark Tructractor at its Michigan City, Indiana plant to haul clay from the pit to pug-mill—it's cheap, quick and reliable!

CLARK TRUCTRACTOR CO.

1124 Days Ave.

Buchanan, Mich.

DIESEL ENGINES FOR CLAY PLANTS

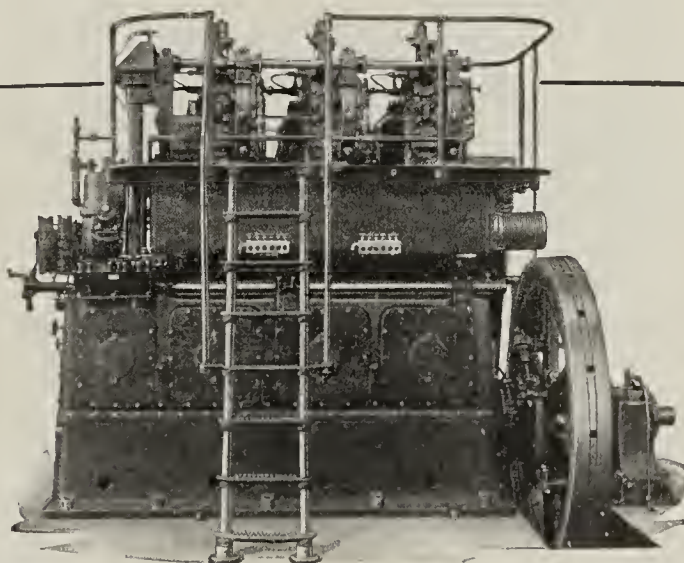
Economical Power—Efficient Operation—Convenient—Conservative—Complete—Easy to care for—Always ready and reliable.

This engine operates on cheap fuel oil. Fuel storage space decreased. A small amount of fuel makes a big amount of power.

Send for new catalog, either vertical or horizontal types furnished.

THE HADFIELD-PENFIELD STEEL COMPANY Bucyrus Ohio

Formerly the American Clay Machy. Co.



Safety First!



\$4.25 per Doz.
\$48 per Gross Pair



\$7.80 per doz.
\$90 per Gross Pair

Cuts and bruises do not come to men who wear Des Moines Gloves and Pads. Fear does not hinder their work.

To any Clay Products Manufacturer who has not been using Des Moines Hand Pads, that will clip out the handpad shown here and mail it to us on his letter head we will send free a pair of Des Moines Mittens.

DO IT TODAY.

Des Moines Glove & Manufacturing Co.
508 Fourth St., Des Moines, Ia.

HAULS MORE LOADS AT LESS COST

The Minster offers you not only cheaper haulage but a saving in labor and time. The Minster is a guarantee of uninterrupted service.

Ask about the Minster, 2 to 8 ton capacities.

THE INDUSTRIAL EQUIPMENT COMPANY
510-516 Ohio St. Minster, Ohio

Eastern and Export Department
The Herbert Crapster Co., Inc.,
1 Madison Ave., New York City



"MINSTER"
INDUSTRIAL LOCOMOTIVES

BUILDING ARTIFICIAL DRYER

Many of the plants in Nebraska and neighboring states are still using the open air method of drying their products. Klose Brick & Tile Co., Lincoln, Neb., however, is planning to get away from the uncertainties of the weather and will install an artificial dryer in the near future.

MAKES FIRST WESTERN NEBRASKA TILE

The first building tile ever manufactured in Western Nebraska has been turned out by the McCook (Neb.) Brick Co. is the claim of that company. There is no reason why this product can not be manufactured there as the raw material is of good quality. The McCook company is anxious to get a line of all kinds of face brick which they can handle in their territory, comprising southwestern Nebraska, northwestern Kansas and northeastern Colorado. Any face brick manufacturer interested in these territories should communicate with them.

RECEIVER FOR TRENT BRICK CO.

Robert A. Mcssler, Trenton, N. J., has been appointed receiver for the Trent Brick Co., it is reported, with local plant on Brunswick Avenue, on application of A. W. Golding, secretary and treasurer. The liabilities are stated at \$70,232, and the assets, \$122,972. The plant will be continued in operation by the receiver.

ANNOUNCE NEW YORK HOME SHOW

The annual "Own Your Home" exposition will be held at the Sixty-ninth Regiment Armory, New York, April 21-28, 1923, in accordance with an announcement just made by the management. During the same month, a similar show will be held at Newark, N. J., which incidentally is the first such exposition to be held in that city.

FOUR COMPANIES EXHIBIT AT CHARLOTTE

The following brick manufacturing companies of North and South Carolina were among those exhibiting at the annual "Made-in-Carolina" Exposition, held at Charlotte, N. C., September 25 to October 7:

The Kendrick Brick & Tile Co., of Mount Holly, N. C.; the Charlotte office of the B. Mifflin Hood Co., of Atlanta; the Sca Board Shale Brick & Tile Co., of Charlotte; the Columbia (S.C.) Clay Co. All of these companies exhibited a complete line of the brick and clay products manufactured in their various plants.

TOLEDO CLAY WORKERS JOIN UNION

Brick and clay workers of Toledo, Ohio, have organized and affiliated with the United Brick and Clay Workers of America.

BONNOT DECLARES DIVIDEND

The Bonnot Co., manufacturer of clay machinery, announces that directors have declared the regular quarterly dividend of 1¾ per cent. on the preferred stock, payable October 1, to stockholders of record September 20.

CELEBRATES THIRTIETH ANNIVERSARY

225 employes, officers and directors of the Cleveland (Ohio) Builders Supply & Brick Co., celebrated the thirtieth anniversary of its founding with an outing and dinner at the Cleveland Yacht Club on September 14. Games for men and women featured the outing, a baseball game being one of the events. Prizes were awarded the winners in the various games.

EMPLOYEES STRIKE FOR HIGHER WAGES

The Crown Brick & Sewer Pipe Works of the Robinson Clay Products Co. at Parall, two miles north of Dover, Ohio, suspended work recently as the result of a strike of 150 em-



Fitted With Jenkins Renewable Disc

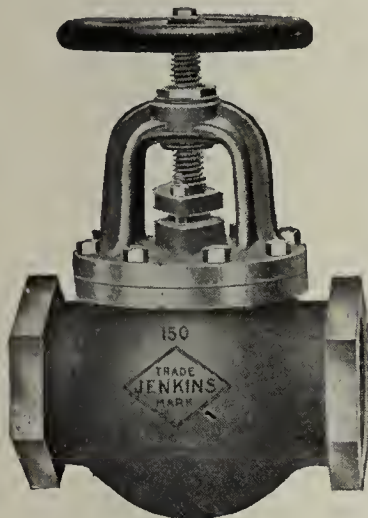


Fig. 141, Jenkins Standard Iron Body
Globe Valve, screwed.

Heavier and stronger
than most standard
iron body valves.

Yoke gives easy
access to stuffing box
which may be packed
under full pressure
when valve is wide
open.

Raised seat rings of
best steam metal,
which are renewable.

These are features of
Jenkins Standard
Iron Body Valves
that mean good valve
service.

Know genuine
Jenkins Valves by
Jenkins Diamond
and signature.

JENKINS BROS.

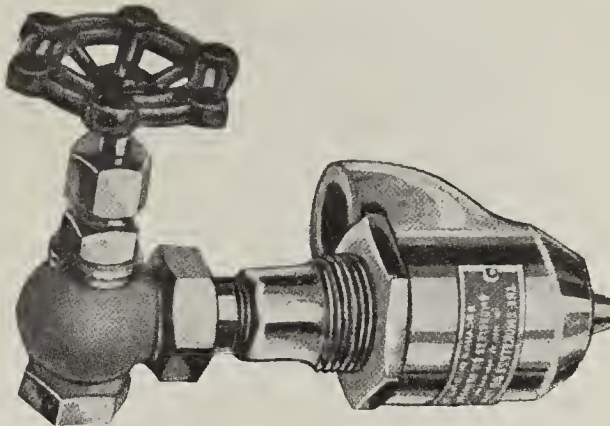
New York	Boston
Philadelphia	Chicago
Montreal	London

Jenkins Valves

SINCE 1864

SUCCESSFUL OIL BURNING

*means a reasonable quantity of fuel,
an even shrinkage of the ware, a
thorough distribution of the heat and
a quick burn.*



The Special Kiln Burner No. 8
is the one sure way to Success-
ful Oil Burning

The SMOKELESS OIL BURNER CO.
BUCYRUS, OHIO

Tanks Pumps Meters Strainers Etc.



HY-GRADE MANGANESE CO.
WOODSTOCK, VA.

Miner
and
Grinders

Especially Prepared
for Brick Making

Unfailing in Steady, Severe, Daily Service

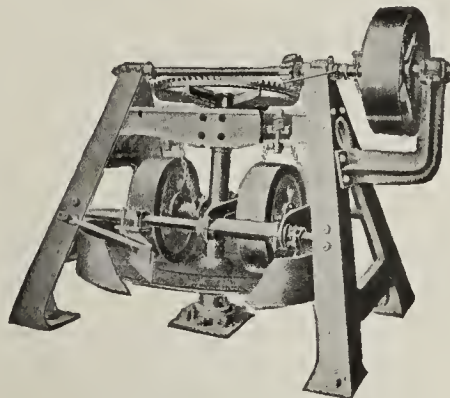
The Eagle Dry Pan has become a funda-
mental necessity in hundreds of large and
small brick plants. Its ability to work
steadily, regardless of conditions, has
made it invaluable to the modern clay
plant manager.

If you want economy in
the grinding of your clay,
use an Eagle.

Ask for Details.



216-217

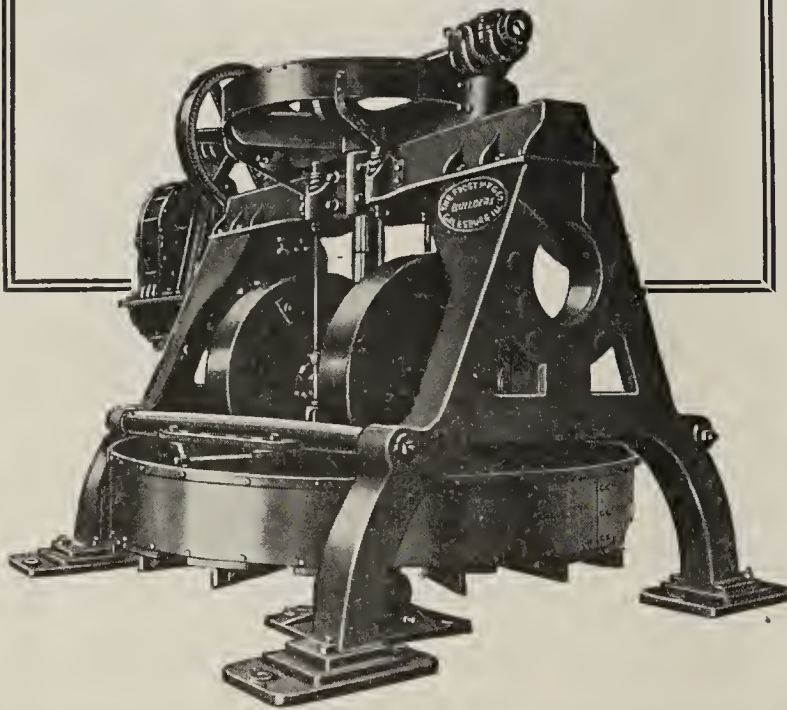


EAGLE IRON WORKS
DES MOINES, IOWA

BETTER QUALITY WARE

That is the result when Frost
Dry Pans are put on the job.

THE FROST MFG. CO.
GALESBURG, ILLINOIS



QUALITY ECONOMY SERVICE

FOERST FUEL OIL BURNERS

- are absolutely leak proof
- will not clog
- produce greater and quicker heat
- are easy to install, easy to operate, nothing to get out of order.
- assure maximum output of ware for a minimum consumption of fuel.

Write for catalog and full information

John Foerst & Sons
Fuel Oil Burner Mfrs.
Bayonne, New Jersey

Estimates furnished on
Complete Installations



ployes for higher wages. An increase of five cents an hour over the present wage of 35 cents an hour is favored by the majority. Others ask only 37½ cents an hour. Some of the men desired to remain at work, said George Polen, the superintendent, but it was decided to close down the plant entirely pending a settlement of the strike.

BETTER HOMES EXHIBIT USES REAL HOUSES

The Better Homes Exhibit, under the auspices of the Columbus (Ohio) Dispatch, which extends from October 8 to 22 has attracted many people to the six model homes that have been picked out for the occasion. The exhibit is given with the cooperation of the various lumber and building supply associations, Retail Furniture Dealers Association, Electrical Dealers and Contractors Association, Columbus Real Estate Board, Music Dealers and many others interested in civic progress.

In all there are six homes that have been picked out for the demonstration. They were located in various parts of the city and were of different size and cost in order to demonstrate various priced homes ranging from \$8,000 to \$65,000. At each home was placed a governor in charge of a number of attendants who busied themselves in showing the house and its fittings.

TO MAKE MORTARLESS BRICK

A charter was recently granted to the Mortarless Stone & Brick Co., Memphis, Tenn., for the purpose of manufacturing and dealing in mortarless stone, brick, and so forth. The company was incorporated by John Walter Dawkins, C. B. King, M. P. Hooton, G. W. Spearman and Etta Flemings. Capital stock, \$25,000.

JOHN MILLAR FETED AT DINNER

The officers of the Canadian National Clay Products Association entertained John Millar of Clayburn (B. C.) Ltd., a former president of the association, with a dinner at the Carls-Rite Hotel, Toronto, on September 22.

REORGANIZE DOMINION PLANT

The Dominion Fire Brick & Clay Products Ltd., Moose Jaw, Sask., has been reorganized. The capital stock has been reduced to \$269,500 by cancelling 25 per cent. of the stock, it is said.

TORONTO COAL PRICES DROPPING

Toronto brick manufacturers continue to get a fair volume of business. The firms that are delivering big contracts are enjoying the best business. Small work is falling off, but there is enough large work on hand to round off a good season. The trend of coal prices is downward. As compared with a peak price of approximately \$12 for slack, Toronto delivery, recent transactions have been put thru at \$8.80 for fuel suitable for brick burning, and better prices are being negotiated by larger consumers. The demand has been such during the present summer as to induce many of the plants to enlarge and many others to start machinery which has been lying idle for the past few years.

NEW FLUE LINING BLOCK EXHIBITED

At the Canadian National Exhibition the Clay Products Agency Ltd., Toronto, showed a wide range of sewer block, chimney flues, wall coping, sewer pipe, chimney tops, and so forth. A new block was shown in flue lining. This was cut at an angle to permit construction where necessary on an angle without cutting the flue lining.

The Cooksville (Ont.) Shale Brick Co., Ltd., had a very fine display of brick at the Canadian National Exhibition, Toronto. The brick was arranged in panels and shades ranged from deep red to gun metal.

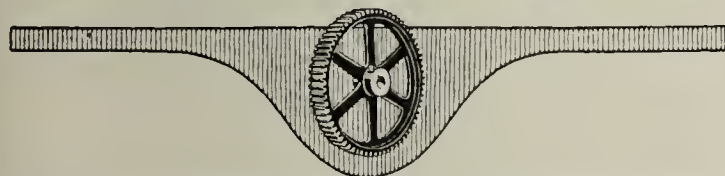
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These sectional, untiring, ever ready conveyors have been tried and never found wanting in times of need.

Unlike the usual portable power driven mechanical contrivances, they never endeavor to shirk a day's or even a portion of a day's work by pleading, "out of order."

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Our representative in your territory will gladly call and show you how effectively a few sections of these time- and labor-saving conveyors will operate in your yard.

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BRICKLAYERS SCARCE IN TORONTO

Toronto is experiencing a shortage of bricklayers, due to the higher wages being paid in other centers for skilled workmen. According to the Builders' Exchange and the Bricklayers' and Stonemasons' Union, there is work enough in Toronto to furnish employment to 300 more bricklayers. The seriousness of the situation is heightened by the fact that very few apprentices are learning the trade.

✻ ✻ ✻

THE BUILDING SITUATION

(Continued from page 556.)

tions, with a total estimated cost of \$5,609,762, a marked increase over the figure for the same month of 1921, which was \$1,701,629. The August total of \$3,071,479, was also exceeded materially.

Baltimore

September operations at Baltimore, Md., reached \$3,649,000, a substantial advance over the corresponding month of a year ago, and approximating closely the preceding month of August, with its total of \$3,620,000. Plans were filed for no less than 213 two-story brick dwellings during the September period, with aggregate valuation of \$730,000.

Common brick leads in demand in the Baltimore district, with a prevailing price of \$20, on the job. This figure has been the same for practically the entire year past. Local producers are maintaining operations at a good point, and a number of plants of the Baltimore Brick Co. are reaching a high level of output.

Cincinnati

A building boom in Cincinnati since the beginning of the year of record breaking figures is shown in the unusual report of Building Commissioner George Hauser.

Building operations for the nine months' period are practically equal to those for the same periods of 1920 and 1921 combined. A comparison of the nine months' period for the last three years is as follows:

Year	No. of Permits	Value
1922	14,651	\$22,450,215
1921	12,948	12,536,005
1920	10,301	10,907,047

A comparison of the month of September for the three years is as follows:

Year	No. of Permits	Value
1922	1,644	\$ 2,895,510
1921	1,402	1,125,535
1920	1,146	1,021,275

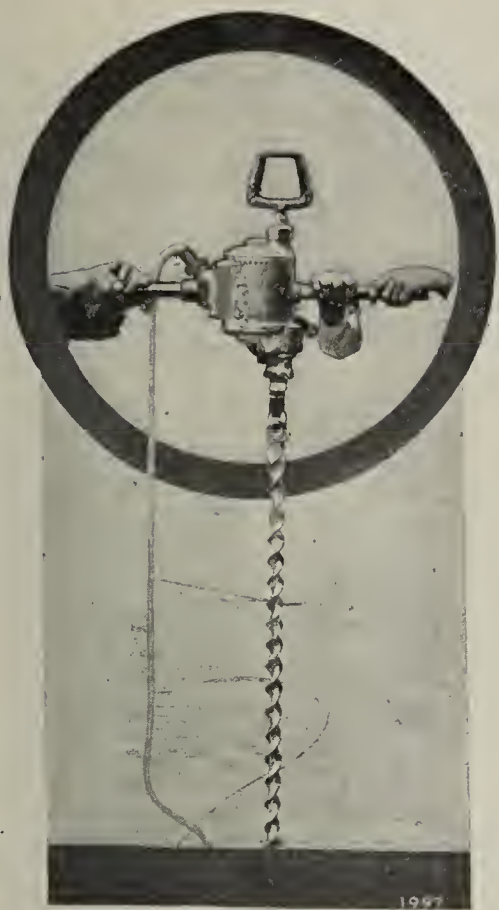
The record breaking figure for August was \$2,989,185, so that the figures for September are shown to be only \$94,000 less.

Of the permits issued in September 60 were for residences with an aggregate cost of \$505,300; 70 for frame residences costing \$365,050.

St. Louis

The St. Louis Real Estate Exchange has launched a campaign to obtain \$30,000,000 in new construction during the six-month period starting October 1. This is more than twice the average building program in recent months. Leading bankers, architects, engineers, manufacturers, wholesale and retail merchants are cooperating in the drive.

St. Louis building has shown an increase of approximately 60 per cent. over the 1921 program, but the local committee is not satisfied with the showing. They have completed a survey of other cities in which intensive building drives were put on and report the work in these cities increased 100 to 200 per cent. The committee will especially endeavor to encourage home building.



In Plastic, Semi-Plastic and Flint Clay

HAND-AUGER drilling wastes money, time and man-power. A hand auger drills only one shot hole while a Little Giant Electric Coal Drill drills fourteen holes.

Through plastic, semi-plastic and flint clay, the Little Giant Electric Coal Drill illustrated, serving the A. P. Green Fire Brick Company, Mexico, Mo., drilled fourteen four-foot shot holes while one similar hole was drilled the hand-auger way.

Demonstrate the speed and economy of Little Giants in your plant. Available for operation on D. C., or single, two or three-phase A. C. Address nearest Branch for trial drill.

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R-23

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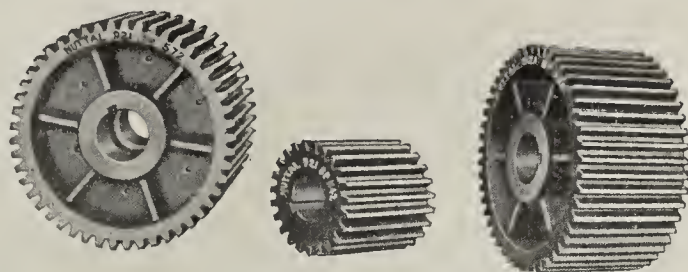
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Coal



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Drills



To Make the Best Brick You Must Have the Best Machinery

No machine is best if every part isn't the best and no part is more vital than the gears.

If we don't make the best gears it is our own fault, because we buy the best materials we can obtain, made to our own specifications strictly for gear production. We have the best chemical and physical testing facilities money can buy, and we have the finest Machinery ever built for gear work. We have skilled men of long experience, and we have careful, accurate inspectors. We try earnestly, every way we know how, to make the best gears in the world, so as to deserve your confidence and patronage and help you make the best brick.

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“Hurricane” Automatic Mangles offer great savings in steam, power and labor, and they take up a minimum of floor space. These machines eliminate much finger marking and scarring.

Many china and porcelain concerns in this country have installed “Hurricane” Automatic Mangles and have cut drying time and costs.

Shall we send you our new folder on modern Ceramic Drying Methods, or have an engineer to call and go over your particular problem with you?

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Drying Machinery Company**
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Chicago

Chicago’s appetite for new homes remains unsated with the coming of fall, according to the September report of City Building Commissioner Bostrom, which discloses that the city closed the first nine months of the year \$66,431,150 ahead of the same period last year in expenditures for new buildings.

Permits for 241 apartment buildings, containing 880 flats, were taken out in September, according to the report. In August permits for 250 such buildings to contain 881 apartments were issued. New residences called for in permits issued last month numbered 494, as compared to 574 in August.

The total value represented by the September permits was \$12,263,100, as compared to \$17,919,950 in August, and \$12,256,000 last year. According to the report, the seasonal reduction in construction work has not yet affected the building of apartment houses.

The following tabulation gives the story of the September permits in figures with comparisons with the activities of August and September of last year:

	Sept. 1921	Aug. 1922	Sept. 1922
Residences	609	574	494
Apartment buildings	175	250	241
Industries	141	156	134
Others	60	68	55
Total	985	1,048	924
Frontage, feet	28,427	30,832	20,067

Including buildings for which permits were issued in September, Chicago has supplied itself with 17,760 new homes since the first of the year. Of these, 13,423 are apartments and 4,337 are houses.

Statement of the Ownership, Management, Circulation, Etc., Required by the Act of Congress of August 24, 1912

of “Brick and Clay Record,” Published Bi-Weekly at Chicago, Ill. for October 2, 1922.
State of Illinois,
County of Cook.
SS.

Before me, a Notary Public in and for the State and County aforesaid, personally appeared Edwin G. Zorn, who, having been duly sworn according to law, deposes and says that he is the Editor of the “Brick and Clay Record” and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in Section 443, Postal Laws and Regulations, printed on the reverse of this form, to-wit:

1. That the names and address of the publisher, editor, managing editor, and business managers are:
Publisher: Industrial Publications, Inc.....Chicago, Ill.
Editor: Edwin G. Zorn.....Chicago, Ill.
Managing Editor: F. L. Steinhoff.....Chicago, Ill.
General Manager: H. H. Rosenberg.....Homewood, Ill.
Business Manager: David B. Gibson.....Chicago, Ill.

2. That the owners are: (Give names and addresses of individual owners, or, if a corporation, give its name and the names and addresses of stockholders owning or holding 1 per cent. or more of the total amount of stock.)
H. H. Rosenberg.....Homewood, Ill.
David B. Gibson.....Chicago, Ill.
Edwin G. Zorn.....7528 Morgan St., Chicago, Ill.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent., or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state).....None.

4. That the two paragraphs next above giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company, but also, in cases where the stockholders or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant’s full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds or other securities than as so stated by him.

Edwin G. Zorn,
(Signature of editor, publisher, business manager, or owner.)
Sworn to and subscribed before me this 2nd day of October, 1922.

H. J. Hammond.
My commission expires Oct. 14, 1925.

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Leading Clay Journal of the World.

BRICK *and* CLAY RECORD

Established 1892. Now in its thirtieth year.

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Member of Associated Business Papers, Inc.
Member of Audit Bureau of Circulations.

Subscriptions: One Year (26 Numbers), United States, \$3.00; Foreign, \$4.00;
Single Copies, 25 Cents.

Published Every Other Tuesday by

INDUSTRIAL PUBLICATIONS, Inc., 407 S. Dearborn St., Chicago.

Telephone Harrison 9462

NEW YORK

CLEVELAND

KANSAS CITY

Chicago, October 31, 1922

Vol. 61, No. 9

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The EDITOR'S CORNER

At the Fork in the Road—Part II

*Before Going Farther Let's Look at
the Sign on the Highway to Progress*

WE ARE still "At the Fork in the Road" (readers who have not already read special editorial, pages 384-5, Brick and Clay Record, September 19 issue, should refer to the editorial published under the head "At the Fork in the Road"). While we are stopping to look over our "machine" let us glance at the informative and guiding bill boards on the roadside.

On one side a manufacturer of concrete machinery states "From a standpoint of labor, concrete brick are cheaper to manufacture than are clay brick. Cement brick gain strength with age and are called 'the brick with eternal life.'"

"In Maryland and thruout the east, use of cement brick has become so extensive that large manufacturing plants are being constructed to supply the demand. A plant, recently built in Baltimore, is said to be the largest of its kind in America. It has a capacity ranging from 95,000 to 100,000 brick daily and employs 28 men as operators of material mixing machinery. Engineers are reported to be at work now on four more plants of equal capacity to be built in the East."

Competing Materials Awake

By consulting a chart on the consumption of common brick, published in another part of this issue, it will be seen that the public is purchasing less and less common brick each year. One of the reasons for this is reflected in the increased use of cement.

Manufacturers of competing materials have not been asleep; they are bringing down their cost to a point which forces the public to recognize their product. The selling price is going to bear a greater influence on the future of the clay industry than it ever has—and what is selling price? It has for its basis production cost. Manufacturing cost of clay ware must, therefore, be an object for reduction, so that the selling price can be lowered.

He Has Seen the Light

Babson says, "The successful business man and executive must apply fundamental principles if he is to succeed. Competition will be extremely keen during the next few years and the advantage will be with the man who can produce quality goods at a rela-

tively low price."

Look at the sign board on the other side of the road. It states, "I was very much interested in the editorial 'At the Fork in the Road' in Brick and Clay Record of September 19. You have certainly hit the nail on the head and I believe that the subject of Plant Betterment featured in the last two issues is of vital importance to the entire industry. For over 2½ years we have been consistently and persistently carrying out a campaign of cost reduction."

The above is from a well-known and leading manufacturer on the Pacific coast. There are others that are saying and doing the same. Brick and Clay Record has sensed the immediate need of the hour—the most deeply considered thoughts and actions of the best minds in the industry, and is issuing a clarion call to the entire clay manufacturing business. Besides awakening it to a realization of strong competition which must be met, and need for lower selling prices, it is pointing out tried and proven ways for Plant Betterment which will make lower selling prices possible. This advice is taken from men of the calibre who realize that progress holds no breathing spells. Progress is a huge gear that is steadily being driven by the earth during its constant revolutions—and those who do not keep in step with its pace will soon be caught in the mesh and crushed.

Once Modern Plant Now Obsolete

Many had built modern plants years ago—gloried over it and forgot to grow. But plants, that in 1910 were heralded far and wide as the latest models of their day, are forgotten and made almost obsolete by the new and modern plant of today. No industry can survive on the glories of a reflected past. There must be eternal vigilance.

Here is another equally interesting display—one with much color in it—from a prominent Ohio concern: "The old slow and expensive hand methods of doing nearly everything have been tolerated during the last year and a half since the writer took hold of things, only for the reason that we determined to build up a cash reserve to a sufficient point where we could

make some very extensive changes in method. We have accomplished this task, but only so far as the funds are concerned, and just at the present time we have issued specifications to a number of different bidders asking them to give us detailed outlines and proposals on mechanical equipment, involving a great number of our operations.

"Another element is that the company went along until recently without any real cost system. No one knew positively where profit was made or where loss was sustained. You will note from the above, therefore, that we are now in a transition stage not only as to physical equipment of the plant but as to our cost accounting matters as well."

Produce More Brick Per Man

After all, it is the man capacity that counts. On many plants the proportion of the daily production to the number of workers is something like 1.2 M brick to each man. If 100 brick more per day per man can be made on each plant, and say 75 of these brick must be charged off to cost of equipment, depreciation, interest, and so forth, on a plant of 50,000 daily capacity, employing 50 divided by 1.2 or say 42 men, the increased daily profits resulting from this change would be something like the manufacturing cost of 42x25 brick, or 1,050 brick. This should be clear profit and would amount to something like \$8 to \$15 per day. This achievement will seem to the reader to be simple enough—and it is. A plant in Ohio is now reporting to be making 75,000 brick daily with a complement of 35 men.

To make such accomplishments, it will be necessary for the industry to break away from its traditions. The automotive industry (according to Industry Illustrated), from its start, has been one of the most progressive of modern industries; yet, even with its progressive ideals and far-sighted men, it took this industry a long time to strike out away from the traditions inherited from its ancestor—the carriage makers. Some of the first automobiles actually had whip-sockets on the dashboard—not because they were of any use but because pleasure vehicles had always been made that way. Ridiculous as that idea seems today, it is no more ridiculous than a great many things that have become accepted as right, in the field of clay products manufacturing.

PLANT BETTERMENT

"Every dollar that a company saves on its cost of maintenance or production represents interest for one year at six per cent. on a capital of \$16.66. A saving of even a dollar a day upon some apparently trifling detail may affect the theoretical value of the stock of the company over \$6,000."—Edward Mott Wooley.



"Our company saw the necessity for reducing costs confronting it two years ago, and immediately adopted a policy along this line. Otherwise we figured that our years were numbered. So instead of paying out dividends or expanding we planned a program of plant betterment."—W. L. Hanley, Jr., Bradford (Pa.) Brick & Tile Co.

Are Possibilities of Aerial Tramways Recognized?

Missouri Plant Hauls Clay 1,900 Feet Thru Air and Across 500 Foot Quarry Pit

Transporting clay at the cost of a nickel a ton a distance of 1,900 feet from the storage shed to the plant is an achievement that is unusual, to say the least.

About eight years ago the Continental (Mo.) Brick Co., located about 12 miles south of the city of St. Louis, found their supply of clay exhausted, with a new supply some distance from the plant. In the meantime, the Continental Portland Cement Co. had located adjacent to the brick company's property, and had opened a quarry directly between the plant and the new source of clay supply.

The brick company was confronted with the problem of getting its clay from the bank to the plant quickly, regularly and economically. The new clay field was too far away to use a road which had already been built, so that recourse was had to an aerial tramway. This tramway, which was designed by Broderick and Bascom, covers a distance of nearly 2,000 feet from the clay storage shed to the plant, and straddles the quarry of the Continental Portland Cement Co. The quarry is 500 feet wide and 80 feet deep. There are six wooden towers which support the steel cables over

which two buckets travel a distance of about 10 or 12 feet above the surface of the ground.

The capacity of the buckets is $1\frac{1}{2}$ yards each, in which 125 tons are moved each day. The cost of operation is about five cents a ton. The tramway has now been in service eight years and has been eminently satisfactory. Only one replacement has been necessary—that of one span of wire rope, at a cost of \$500.

This arrangement enables the Continental Brick Co. to maintain its clay shed near the point of gathering. Incidentally, this company strips its clay, gathering it with a Quincy clay gatherer. It is placed in the shed which has a capacity of 10,000 tons, where it is reclaimed by plowing up the clay and loading it into bins which feed the tramway buckets.

Unusual Transportation System for Clay Haulage

Circular Track and Automatic Switches Keep All Equipment Working Steadily

A good deal of study is required to formulate the best plan of operating the pit of a clay plant. Nearly every pit has different conditions to contend with, and no standardized system can be prescribed. But much can be learned by studying the methods others use.



Loading End of Conveyor. Buckets Hold $1\frac{1}{2}$ Yards of Clay Each.



Discharging End of Aerial Conveyor. This Operation Is Automatic.

REDUCE YOUR COST

One of the largest clay pits in operation and one that is operated very efficiently, is that of the Murphysboro (Ill.) Paving Brick Co., whose daily capacity is 80,000 paving brick. The layout and operation of this pit deserves considerable interest.

A cross section of the clay deposit would show on the average about 15 feet of overburden, 40 feet of shale and three feet of bituminous coal.

The overburden is excavated by means of a steam shovel, and a steam dinky hauls the clay away in cars to a dumping ground a quarter of a mile away.

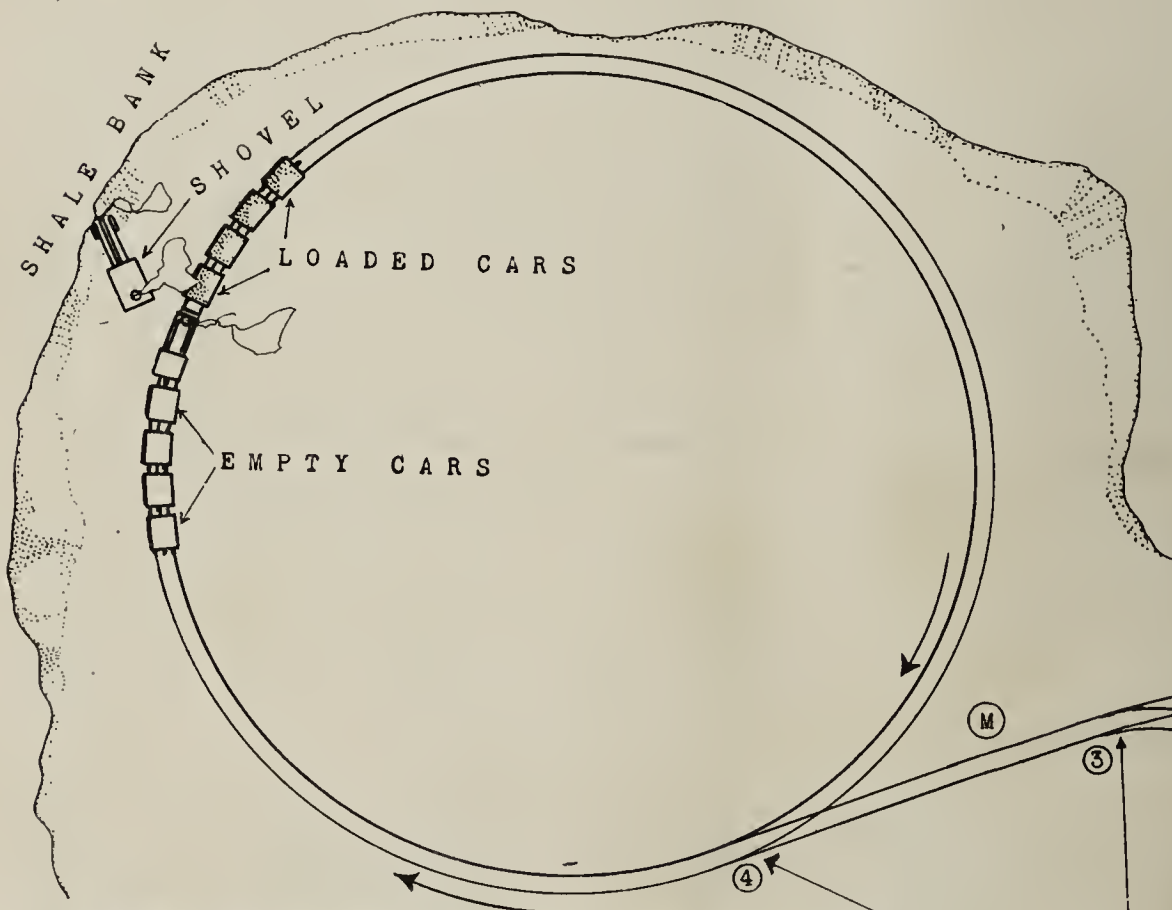
A large shovel, which at one time was used on the Panama Canal, digs the shale, which is not blasted, and places it in $1\frac{1}{2}$ yard dump cars, four of which, together with a $7\frac{1}{2}$ -ton gear driven dinky, form a train. Each car weighs 1,200 pounds; 5,200 pounds when loaded.

The track layout and loading system is very unusual. On most plants where two trains are operated, a lot of switch-

ing or waiting of trains is necessary. On this plant a circular track system is used, and the trains start for the plant in one direction and arrive at the shovel from a different direction. The switches are automatic in operation. In order to get to the plant, the train must climb a six per cent. grade 1,000 feet long between the pit level and plant level. The total distance between pit and plant is 2,500 feet.

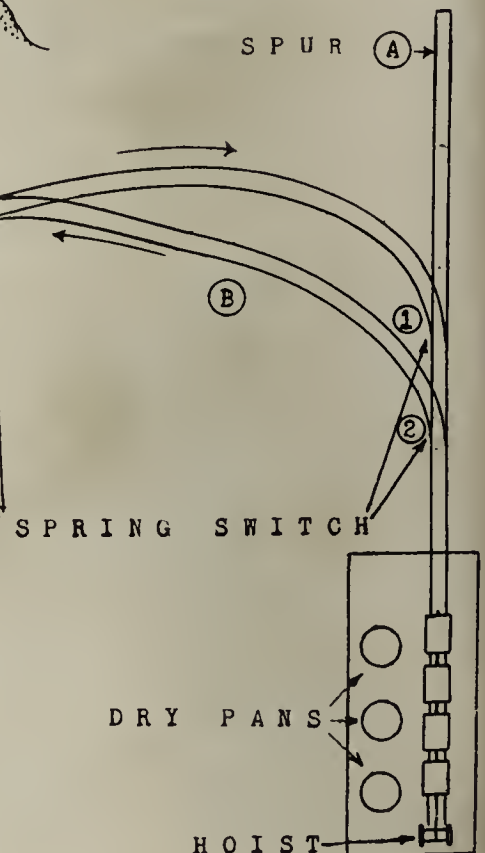
It requires 12 cars to operate this system. The engine drops the loads at the hoist and picks up the empties, pulling them down the hill to shovel. That puts the engine between the loads and empties at the shovel. A motor on the shovel spots the empties for loading, and they are loaded while the engine goes on around the loop and to the plant. The engine is never turned but it always is pulling the loads up the hill.

The four loaded cars are brought up the main line and then backed up into the spur "A" which is on level ground, and eliminates the possibility of the loads escaping back down a hill causing serious wrecks.



Complete Layout of Pit. Engine Pushes Loaded Cars Around Circle Until It Gets Beyond Switch at "4." The Engine Is Then Ahead of the Cars and Pulls Them Up Six Per Cent. Grade Between Switches 4 and 3 Over the Outside One of the Two Tracks Leading from the Plant. Then the Cars Are Backed Onto the Spur "A" from Where They Are Pulled into the Plant by a Hoist. The Empty Cars Are Picked up Near Switch 3 by the Engine and Pulled to the Shovel.

Below Is a Photograph of the Working Face of the Pit.



ELIMINATE WASTE

The engine now picks up the empties coming from the hoist and goes back to the main line thru spring switches "2" and "3" and over side track "B", returning to the shovel in the direction of the arrow.

In the event that the electric motor on the shovel is out of commission, and the cars cannot be spotted, then an extra engine is used. In this event, the empties are dropped back to the side track "B"; then the engine pushes the empties down the hill and each engine spots its own cars at the shovel.

\$1,000 Per Month Profit from Waste

Hollow Tile and Brick Bats
Crushed and Used for Roofing

What do you usually do with your waste product—the broken brick and tile? Do you use them to fill up holes about the plant or have you ever thought that they might be valuable and be the source of an income? The Los Angeles (Cal.) Brick Co. realizes a profit of \$1,000 per month from material that is usually considered waste on most plants. L. S. Collins, general manager of the company has told Brick and Clay Record of this scheme and here is how it is done:

The Los Angeles Brick Co. at present has a capacity of 250,000 brick per day and about 200 tons of hollow tile. To take care of waste material a crushing plant has been installed which reduces the bats to about pea size. This fine material is sacked and sold as roofing.

The brick crusher manufactures ten tons of finished roofing material per day. After passing thru the crusher the material is carried by an elevator to a number of screens. The finished

automatically discharged into a dump wagon and hauled to the company's several plants where it is used as molding sand for soft mud brick. The sand adds to the color of the brick and is of course very cheaply produced.

Mr. Collins says of this idea:

"Our profit from this plant, which manufactures from nothing but waste material, amounts to around \$1,000 per month. Crushed brick is used to a great extent in this locality for roofing, especially for smaller bungalows. This roof is made first with an ordinary felt roof, covered with hot asphaltum, and then sprinkled with the crushed brick. It requires about 150 pounds to cover a square of roofing surface. It has proven a very permanent sort of roofing."

Drag-Line Delivers Clay for Ten Cents Per Ton

Two Men Constitute the Entire Crew—Operations Are Automatic Wherever Possible

Delivery of clay necessary for 75,000 brick at a price of ten cents per thousand seems unbelievable. However, that is what the Georgia-Carolina Brick Co. of Augusta, Ga., is doing with a drag-line excavator. The clay is an alluvial clay, lying in a perfectly level field, the deposit ranging in depth from 12 to 18 feet. The machine operates on the bank of excavation, and is moved backward from the cut. It delivers sufficient clay for 75,000 brick in a ten-hour day, and the cost, including one operator and one helper, one-half ton of coal, oil, waste, and so forth, is \$7.25 per day. The cost of upkeep and repairs for digging clay sufficient for 15,000,000 brick has been \$325, or about two cents per thousand. The two men cover all of the duties of engineer and fireman, and do the necessary spotting of clay cars, moving of machine, and so forth.

Improvement in Dryer Construction

Equal Distribution of Gases
Makes Dried Ware Uniform

Getting rid of moisture in ware with the greatest speed at the lowest cost and with due consideration of safety of the ware is the direct duty of a dryer. But a dryer is a difficult piece of equipment and involves as many complications to operate at highest efficiency as do kilns.

A frequent difficulty experienced in waste heat dryer operation is the maintenance of uniform conditions in each tunnel. Editors of Brick and Clay Record have seen plants where one tunnel would be drying ware safely and speedily whereas in another tunnel all sorts of trouble was had. Production would be held up because for some mysterious reason some of the tunnels were not performing their task properly.

In many cases lack of proper drying function can be traced to the faulty distribution of the hot gases and this of course



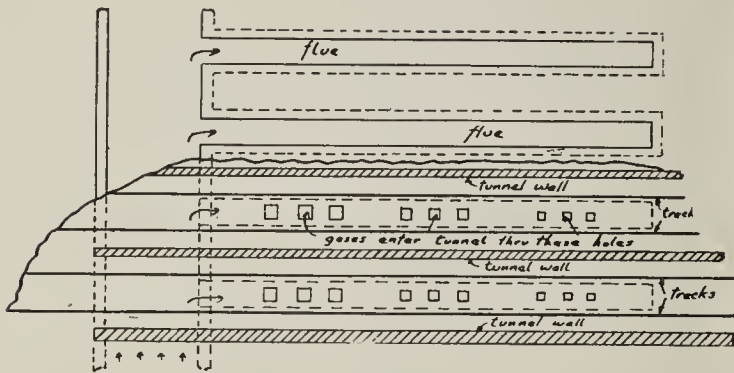
Converting Brick Dust into Gold Dust. This Crushing Plant Earns \$1,000 Per Month by Utilizing Waste Material.

"roofing gravel" is put in 100 pound sacks and sold at \$12 per ton. The fine dust or sand resulting from screening is

INCREASED PROFITS

directly effects circulation and humidity conditions in the tunnels. The gases short cut and some tunnels get a greater volume of gases than others.

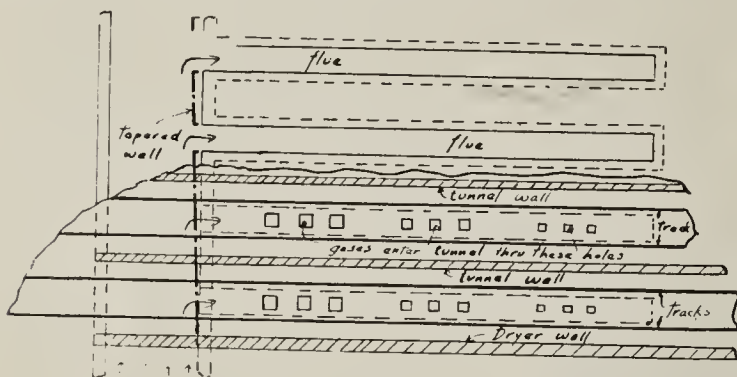
Fig. 1 is a diagram of the plan view of a waste heat dryer



No. 1 Shows Ordinary Type Dryer.

as ordinarily constructed. Fig. 2 shows a tapered wall for the main flue from which the tunnel flues obtain their gases. This is an improvement over the straight wall.

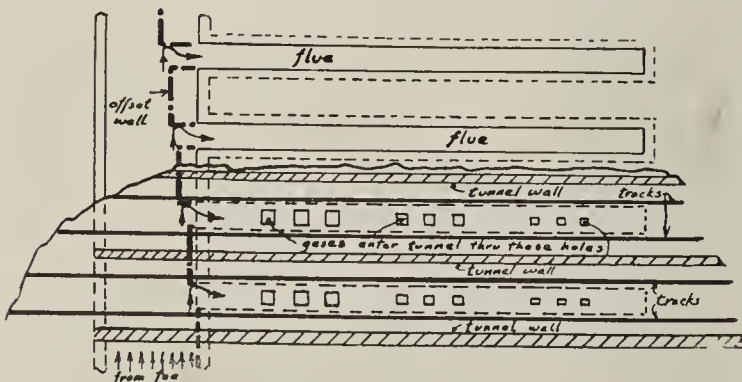
Fig. 3 shows a type of construction which Marion W.



No. 2 Shows Dryer with Tapered Wall (Dotted Line).

Blair, superintendent of the Murphysboro (Ill.) Paving Brick Co., built on the waste heat dryer on his plant with remarkable improvement in dryer efficiency over the former design.

The wall thru which the tunnel flues enter is staggered



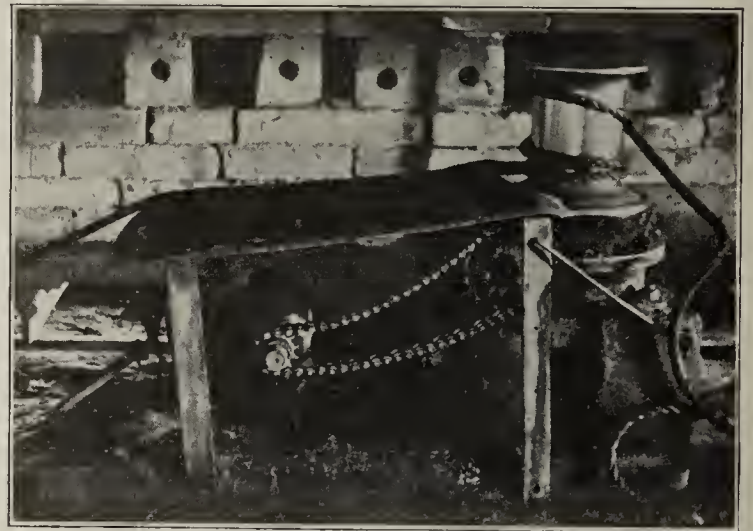
No. 3 Shows Offset Type Dryer (Dot and Dash Line) in Use at Murphysboro (Ill.) Paving Brick Co.

or offset as shown by the heavy dot and dash line in diagram. In this way the gases are "caught" and diverted into the flues. The construction helps the gases to find their proper channels and the fact that the dryer operation was improved is "proof of the pudding."

Mechanical Car Mover Saves Labor

Use Capstan-Like Device to Spot Freight Cars, Move Kiln Cars and for Other Purposes

Heavy cars and equipment are moved with ease and facility on the plant of the Donnelley Brick Co., New Britain, Conn., by the use of an electrically driven device resembling very much a ship's capstan. The apparatus is not very expensive, and was purchased from the Silent Hoist Co. of Brooklyn, N. Y. The equipment is operated by a boy who by stepping on a lever starts the small motor in operation. The motor causes the cylinder or drum shown in the accompanying photograph to revolve. By winding a few turns of rope around the cylinder and holding the rope taut, the remaining rope



A Handy Piece of Equipment Used to Spot Freight Cars, Move Kiln Cars and Other Purposes.

will begin to wind around the drum, drawing whatever object is attached to the rope closer to it. In this way the operation is very similar to the operation of a capstan.

The equipment is used for moving kiln cars at the setting platform, transferring kiln cars, placing loaded cars at the unloading platform, and for moving and spotting freight cars.

By means of a system of pulleys, the apparatus is used to move these cars in any direction desired, and at various points in the factory. Mr. Donnelley declares the equipment to be a labor saver, and is highly pleased with its performance.

Dryer Cars Taken Into Continuous Kiln Without Turntable

Wide Wickets and Special Truck Eliminates Losses Frequently Encountered

The use of turntables and the consequent loss of brick falling from a car when they are in use has been eliminated in the case of a continuous kiln at the Vincent Clay Products Co., Fort Dodge, Ia. The wickets or doors of the chambers, instead of being about four feet wide, just enough to take care of the width of the dryer, are about seven feet wide, large enough to take care of the dryer car lengthwise. The cars of brick come to the kiln on the track parallel with the kiln. When the car arrives opposite the chamber being set, a small lift truck, shown in the illustration, is used. The height of this truck provides a little clearance between it and the dryer car, and lugs are attached to insure the proper

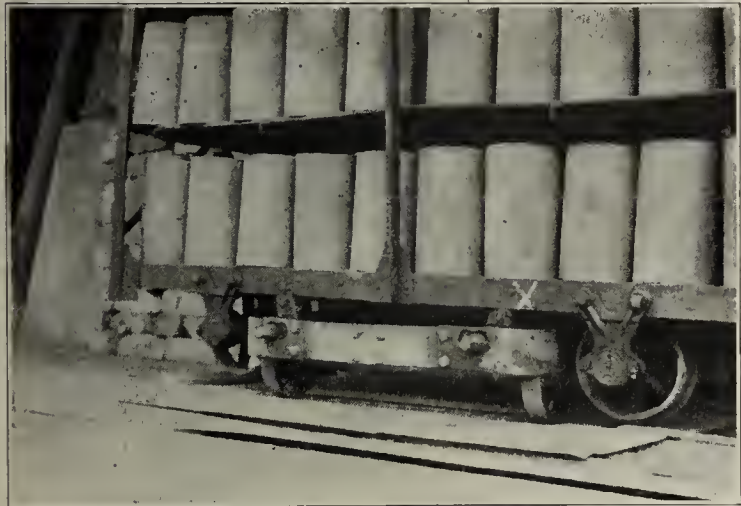
IMPROVE YOUR PLANT

location of this truck beneath the dryer car. By means of a long hand lever and eccentric lifting devices, the load is taken off the wheels of the dryer car and placed on the small truck. The dryer car is then taken into the chamber



Special Truck with Lifting Levers Lowered. Note Lugs That Insure Proper Location of Truck.

at right angles to its former travel without being turned. The small truck runs on pieces of sheet iron. When empty



Lifting Levers of Truck Have Taken Load Off of Dryer Car So That Wheels Show Clear of Track.

the operation is reversed, and another car taken into the chamber.

25 Horses and Men Made Jobless

Gasoline Locomotive and Clay Cars
Save More Than \$100 in Wages Daily

Eliminating the need for 25 horses and drivers is some drastic change! But this is what has actually happened on the plant of the Jova Brick Co., Roseton, N. Y., according to Superintendent Welsh. The Jova Brick Co. has a reputation among Hudson River plants of being the most modern brick yard on the river. It is very much different from its sister Hudson River establishments.

Just how the reduction in the number of horses and men was accomplished is undoubtedly of considerable interest. It is common practice in the Hudson River yards to dig

the clay by hand or steam shovel, and load it into two-wheeled dump carts drawn by a single horse, and attended to by the driver.

The Jova Brick Co. recently purchased two Minster locomotives and 16 Easton clay cars to haul clay from the pit to the plant. By making this installation it has eliminated the need for 25 of the horses and a nearly equal number of men which were formerly required. Wages in this vicinity are about \$4 to \$4.25 per day. Considering the fact that it is hard to get men to care for horses properly a considerable



This Gasoline Locomotive Has Put the Horse Shown in the Insert and Many of His Fellows Out of Work.

saving has been effected by the elimination of 25 horses and the reduction in the number of men required.

The capacity of the Jova Brick Co. is about 4,000,000 brick monthly.

Cuts Down Labor Needs Between Pit and Plant

Only Two Men Used to Handle Clay for
48,000 Brick from Cars to Machine

Soft mud brick plants' labor requirement will quickly mount if vigilance is not practiced, and labor runs into money. The



Cable Drum Hoist Shown in Lower Right Hand Corner Hauls Cars from Pit to Plant.

Donnelley Brick Co. of New Britain, Conn., has excellently systematized one department in which there is usually a

SET ASIDE DIVIDENDS

large waste of man power. This company has reduced the number of men employed between the clay haulage and soft mud brick machine to a minimum.

One soft mud brick machine is employed to make 48,000 brick daily. Clay is dug in the pit by a Thew shovel, and brought to the plant in industrial cars by means of a cable drum hoist. The cars are then dumped into a feeder which also acts as a disintegrator, and mixes the coal with the clay, besides doing some pugging.

The feeder is operated by one man. The hoisting and dumping of cars is also taken care of by another man. These two men handle all the clay for 48,000 brick daily from the time it is loaded onto the cars until the time the clay is in the machine being shaped into brick. The saving in labor can be appreciated.

This arrangement, when compared to systems in use on other plants, shows a less amount of labor involved and is one of the most economical in use among soft mud brick plants.

Chain in Center of Track Accomplishes Several Automatic Features

No Labor Is Required for Operation—in Fact No Attention Needed Except Lubrication

Empty dryer cars are always kept at the closest point to the machine as the result of a unique chain pulling arrangement used at the plant of the Sheffield (Ia.) Brick & Tile Co. The empty cars are taken from the three-track transfer car, and fed onto the regular 24-inch gage track. A chain,



An Empty Car at the Top of the Incline, Up Which It Has Been Pulled by Chain.

which is driven continuously by the motor shown in the illustration is equipped with arms that engage one of the axles of each dryer car, and pull it up a steep incline approximately 20 feet long. From the top of the incline the cars coast down grade to the point nearest to the machine. In this way a constant storage of cars is available, and accidents due to the cars running back to the transfer track are prevented.

Greater Care in Hacking Produces Higher Quality Ware

Use of Wooden Racks, Which Enable Brick to Be Hacked Without Being in Contact

Where it is desirable to give more care to the manufacture of smooth or rough texture face brick, such as the protection of the faces, the following idea, used by the Acme Brick Co., of Cayuga, Ind., and the Western Brick Co., of Danville, Ill., as well as others, is a good one. The brick are taken from the off-bearing belt and handled with greater care than most



Rack Car Used in Large Face Brick Plants to Protect Faces of Brick When in Dryer.

off-bearers give, and placed upon wooden racks constructed so as to form shelves on the dryer car. In this way the brick do not touch each other and the faces are not marred in any way or touched by any object until they are completely dried, after which it is, of course, perfectly safe to set them in the kilns face to face. In this way, altho the hacking is more expensive, higher quality brick are obtainable and usually a better price can be obtained, which will more than make up for the increased cost of manufacture.

✂ ✂ ✂

Determine at what cost you must make your ware to show a good profit and enjoy full production. Then plan to produce at that cost or lower and success is yours—otherwise worry and failure.

✂ ✂ ✂

Put all your eggs in one basket and watch that basket.

The "mud-brick" days are over—just as the stage coach and horse cars have vanished.

Plan Now for Your March Needs

Coal Prices in All Probability Will Not Go Down —Market May Be Panicky in Early Spring

FAVORABLE WEATHER this fall has been a great blessing to the people of this Republic. Low domestic fuel consumption and unusually excellent work by the railroads have enabled a movement of coal and freight which is of record volume. Buyers are heeding the advice given by Hoover and the United States Chamber of Commerce to purchase only sufficient fuel to take care of their immediate needs.

The effect of the above influences has been to produce a supply of coal exceeding consumption and, hence, a replenishment of stocks. Prices have been forced down and coal on many clay plants is being purchased at \$5 to \$7 a ton at the plant compared with \$7 to \$9 a short time ago.

Coal prices, in many instances, however, are still 100 per cent. higher than in 1921, altho the mine wage level is about the same and the production higher. There is no justification for these higher prices on economic grounds. It is hardly likely, however, that present prices will go down much farther. The margin between the consumption of coal and distribution is hardly large enough to force coal operators to reduce prices. Business is going ahead at a good pace and for many months to come there will be need for considerable quantities of coal. The prospects for both business and weather conditions are such that there can be no let-up in consumption.

But of course there is a contradictory possibility of a large coal supply actually being built up. The record of freight loading reveals that in the month of October, it is heavier than in the other 11 months. In recent years, November has always seen a downward tendency with December even lower. Hence, if weather is favorable, if buyers still hold off and if coal movements are increased in November and December, then there is a chance to build up such surplus stocks that there will be a necessity for further price reductions.

The clay manufacturer must consider the coal problem far into spring instead of for the matter of a month or two. Hence, it is essential that he be especially on the alert.

With the danger of more trouble with the miners looming

up big for April, there is every reason to fear high prices and a panicky market for February and March of 1923.

* * *

PRIZES FOR BEST PAPER ON VITRIFIED CLAY PIPE IN PLUMBING SYSTEMS

A national contest that is expected to reduce the cost of plumbing installations and consequently reduce building costs thru education as to the uses of clay pipe is announced by John T. Morris, director of the College of Industries, Carnegie Institute of Technology. Prizes amounting to \$250 are offered for the best papers written on "The Use of Vitrified Clay Pipe in Plumbing Systems." The contestants are divided into three classes, plumbers and inspectors, instructors in technical institutions and students.

The contest is the first of a series designed to link more practically the College of Industries of the Carnegie Institute of Technology with the industries and trades. The judges consist of Director Morris and Professor S. E. Dibble, of the College of Industries; William J. Wooley of the National Trade Extension Bureau, Evansville, Ind., and Joseph A. Weldon.

* * *

ADVERTISING THAT DRAWS ATTENTION

One of the methods which the Cleveland (Ohio) Builders Supply & Brick Co. is using to rivet attention on brick is by means of the unusual and attractive window display pictured here.

This display is 12 feet long; the table or shelf on which it rests is three feet wide and the panel of photos in the foreground is two feet wide. All photographs are sepia enlargements retouched so as to bring out vividly the important steps. Each photo is numbered, and the product itself is shown on the shelf in front of the photo. For example, Picture No. 1, shows a steam shovel at work in the shale bank. Exhibit No. 2, joined to No. 1 by means of a narrow red ribbon, shows a small pile of raw shale.



Unusual and Clever Display of the Cleveland Builders Supply & Brick Co. The Various Steps in Brick Manufacturing Are Depicted and Actual Samples Show the Condition of the Product at Each Stage.

No. 3 shows the dry pan and No. 4 ground and screened clay and shale, and so forth.

The background of the signs is a rich creamy color with sepia border and lettering. The rich shades of the completed product are enhanced by this creamy background, and the passerby, attracted by the beauty of the display finds himself intrigued by the story told so graphically, and reading, he gets the full educational value of the display.

The display was shown in Cleveland for one week in the United Banking and Savings Co. window. It was then exhibited in the office of the Cleveland Builders Supply & Brick Co. for one week; next in the windows of the Union Trust Co. on Euclid Avenue (Cleveland's largest bank). Great crowds of people viewed the display, often blocking traffic—positive proof that educational matter relative to permanent building when attractively displayed commands the attention of the public. It will be exhibited at the Bricklayers' Apprentice School and at the Builders Exchange. Several other advantageous display points have been offered and a wide circulation is insured.

* * *

STRATTON LEAVES BUREAU OF STANDARDS

Our government seems to have difficulty in holding its best men in the Bureau of Standards. About two years ago A. V. Bleining left the Bureau; last year Homer T. Staley found other interests and now it is with very much regret that we announce that Dr. Samuel W. Stratton has resigned the directorship of the Bureau to become president of the Massachusetts Institute of Technology.

While acting as Director of the Bureau, a position which he has held since its inception in 1901, Dr. Stratton has accomplished remarkable things. During the first year of the Bureau's existence, it was allowed an appropriation of only \$200,000. With that little sum as a beginning, Dr. Stratton gradually built up the Bureau, constantly increasing its scope and value until now the sum of \$2,000,000 is expended yearly in promulgating scientific work.

Dr. Stratton's unusual ability in organizing and directing work on a large number of scientific and technical problems, most of which were of a diversified nature, is attested to by the men with whom he has worked. Despite the large scope of the Bureau's work, Dr. Stratton at all times had its every activity in mind.

On account of his executive ability combined with a broad scientific knowledge, Dr. Stratton will be eminently well fitted to direct the destinies of the Massachusetts Institute of Technology. "Boston Tech." has been without a head since the death of Dr. Richard C. MacLaurin in January, 1920.

Before he became director of the Bureau of Standards, Dr. Stratton was an instructor in mathematics, physics, and electrical engineering at the University of Illinois, later he became instructor in physics at the University of Chicago. He carries an honorary degree, as Doctor of Engineering, from the University of Illinois, and that of Doctor of Science, from the Western University of Pennsylvania, from Yale and from the University of Cambridge.

* * *

FIRE CLAY BRICK PRODUCTION DROPPING

Data as compiled by the Refractories Manufacturers' Association for September show production of fire clay brick fell from 66 to 62 per cent. of the capacity reporting, representing approximately 74,450,000, 9-inch equivalent. About 46,250,000 brick were produced in September. Shipments increased about five per cent. to 67 per cent. of capacity, or about 50,000,000 brick. New orders received during September amounted to 56,780,000 brick, or 76 per cent. of the capacity. Orders on record August 31 amounted to 204 per cent. while those of September 30 amounted to 199 per cent. of capacity or approximately 153,000,000 and 148,500,000 brick, respectively.

In connection with silica brick, production increased about 12 per cent. from 35 to 47 per cent., or 11,295,000 brick, the total capacity reporting being represented by approximately 24,000,000, 9-inch equivalent. Shipments were somewhat lower, being about 41 per cent. of capacity, or 9,950,000 brick. New silica brick orders received during September were 46 per cent. of capacity, or 11,155,000 brick whereas in August they were about 39 per cent. Orders on hand September 30 were 136 per cent. of capacity, or about 32,600,000 brick, as against 130 per cent. on August 31, or approximately 31,275,000 brick. Unfilled orders of fire clay September 30 amounted to 75,225,000 brick, or 101 per cent. of capacity, while unfilled orders in silica on the same date amounted to 77 per cent. of capacity, or a total of 18,500,000 brick.—Iron Trade Review.

* * *

SOUTHERN A. F. B. A. GROUP MEETS

Members of the Southern group of the American Face Brick Association held a business meeting in Atlanta, Ga., October 19, with a full attendance of the membership. The fuel situation and the general business outlook were discussed, manufacturers agreeing that the outlook for the next few months was unusually good. The fuel situation has improved materially the past two months and no further trouble is anticipated from this source.

* * *

WORKING ON STANDARDIZATION OF TILE

Following the lead of the paving brick manufacturers, hollow tile is now turning its attention to the matter of standardization and simplification. This important activity is being carried on thru the Fabricated Production Department of the Chamber of Commerce. The Hollow Building Tile Association thru its chief engineer, Chas. C. Crockatt, is also working on this problem. When standardization and simplification of sizes, styles and type of hollow tile have been effected a service of immense value to the tile manufacturer as well as to the entire construction industry and the public will have been rendered.

* * *

PROTEST BRICK AND TILE TARIFFS

Protests against approximately 1,000 supplements and tariffs, the majority of which were scheduled to become effective October 16, were filed with the Interstate Commerce Commission by the American Face Brick Association, the Hollow Building Tile Association, the Ohio Paving Brick Manufacturers' Association, and the Eastern Paving Brick Manufacturers' Association. It was the contention of these associations that the tariffs would result in the elimination of brick and articles taking brick rates from the benefit of the combination rule set forth in W. J. Kelly's freight tariff No. 228, I. C. C. No. U. S. 1, and in an increase of 50 cents per ton in all brick rates made on combination basis.

* * *

NON-SPALLING FIRE BRICK BEST

Investigation of fire brick in malleable iron furnace bungs has been continued by the Bureau of Mines in order to translate laboratory results for users of clay refractories in malleable iron furnace practice. Different types of fire brick were found to stand 3 to 22 heats. The standard laboratory tests for fire brick did not show this difference, so a thoro study of the relation between the laboratory and service tests was made to assist the manufacturer in the utilization of fire clays for malleable iron furnace brick. The brick giving the heat service had a porosity between 1.9 and 2.3 per cent. Those brick showing the smallest spalling loss stand up best in practice.

Business Briefs and Trend

RAILROADS AGAIN BUYING ROLLING STOCK

According to Manufacturers Record, which has obtained figures from most of the important railroads of the country, it appears that there have been delivered, are in delivery or are under construction for the railroads, 101,212 freight cars, 586 passenger cars and 1,482 locomotives. These figures have been gained from the reports of 25 railroads. This means that hundreds of millions of dollars will be spent by the railroads in the near future to bring their rolling stock to the highest point of efficiency, and to make it adequate for the country's needs. A glance over the accompanying table, however, will show that these figures, large as they seem, are still considerably below the pre-war figures of locomotives and freight cars manufactured.

The total number of freight cars in the country is about 2,500,000. The total of cars ordered during the last three years has been so ridiculously small that the rate of depreciation on the 2,500,000 cars exceeds the amount of new cars built.

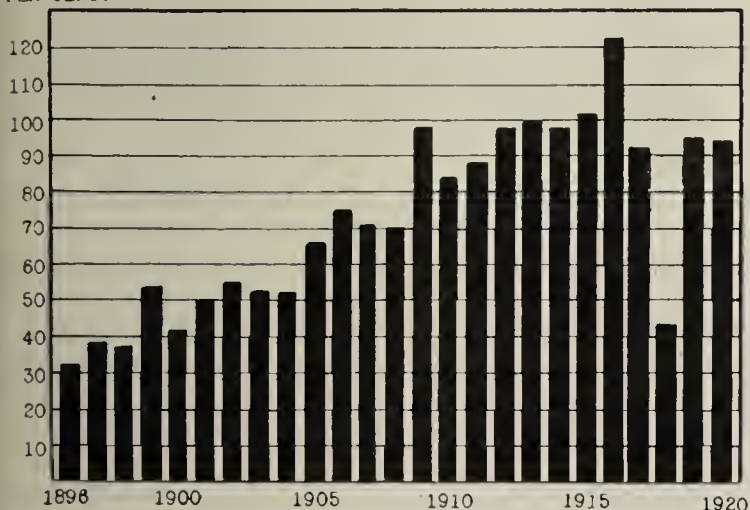
LOCOMOTIVES AND FREIGHT CARS ORDERED SINCE 1900

Year	Locomotives Number	Cars Number
1901	4,340	193,439
1902	4,665	195,248
1903	3,283	108,936
1904	2,538	136,561
1905	6,265	341,315
1906	5,642	310,315
1907	3,482	151,711
1908	1,182	62,669
1909	3,350	189,360
1910	3,787	141,024
1911	2,850	133,117
1912	4,515	234,758
1913	3,467	146,732
1914	1,265	80,264
1915	1,612	109,792
1916	2,910	170,054
1917	2,704	79,367
1918	2,593	114,113
1919	214	22,062
1920	1,908	84,207
1921	239	23,346

RAILROAD TRAFFIC SINCE 1900

Year	Ton Mileage
1900	141,596,551,161
1905	186,463,109,510
1910	255,016,910,451
1915	276,830,302,723
1916	365,771,824,741
1917	394,465,400,493
1918	405,379,284,206
1919	364,293,063,017
1920	413,698,749,000
1921	309,443,050,000

PER CENT.



Face Brick Consumption in America in Per Cent. of 1913 Totals. Figures Obtained from Index.

FAILURES AND LIABILITIES DECREASE

As an evidence of the completion of business liquidation, commercial failures in the United States have shown a decrease, particularly during the third quarter of 1922. There has been a decrease not only in the number of failures but a very decided decrease in the amount of liabilities. While the country's business mortality measured by failures still exceeds that of last year, the indebtedness of the insolvent firms during the third quarter was actually less than that reported for the third quarter of 1921.—National Industrial Conference Board.

Making Use of Facts and Figures

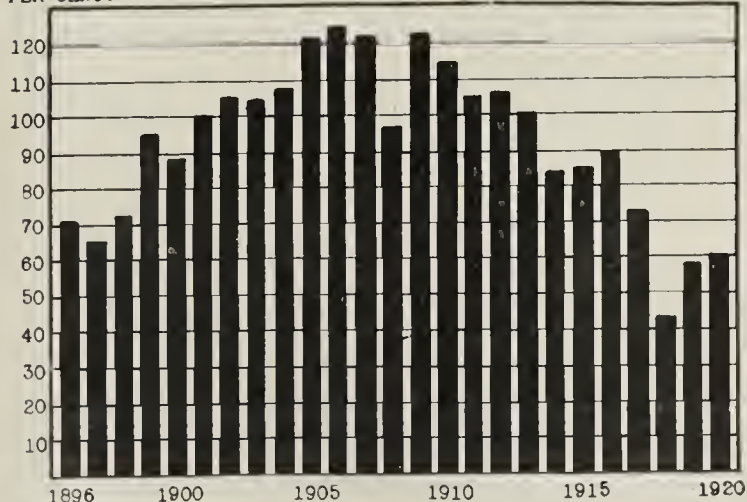
Business judgment in the long run can be no better than the information on which it is based, says Chemical and Metallurgical Engineering. This simple truth is the real evidence on which that very practical scientist Henry S. Dennison is willing to rest the cast of "Facts and Figures" vs. "Hump and Hunch." In a talk recently before the National Conference of Business Paper Editors he gave it as his opinion that many of the hard-headed old fellows who have opposed the scientific management of industry and the use of facts and figures really carry around just this sort of data with them and don't know it. Their "hunches" are based, in a sort of subconscious way, on sound knowledge and ripe experience tucked away somewhere in the backs of their heads. Charts and graphs, they say, will eliminate judgment and make business merely the Punch-and-Judy show of automatons. On the contrary, Mr. Dennison avers that these facts and figures are responsible for the most exacting demands on judgment. It is when a man is in possession of all the facts in a case that he is most likely to ponder the consequences of his decision.

Are you using Brick and Clay Record's "Business Briefs and Trend" information to its fullest extent?

ALL CROPS BUT CORN GAIN IN 1922

Comparing this year's crops with those produced last year brings to light the fact that in all important crops but corn, 1922 shows substantial gains over 1921. These figures are not a true indication of the farmers condition, however, as the lower prices of farm products tend to offset somewhat

PER CENT.



Common Brick Consumption in America in Per Cent. of 1913 Totals. Figures Obtained from Index.

the larger crop yield. The following table is an estimated comparison between our crops this year and last year.

	1922	1921
	Bushels	Bushels
Wheat	818,000,000	795,000,000
Corn	2,875,000,000	3,080,000,000
Oats	1,255,000,000	1,061,000,000
7 Cereals	5,274,000,000	5,195,000,000
	Bales	Bales
Cotton	10,600,000	8,000,000

same period this year they moved 31,671,396, an increase of 2,516,249 cars, or an increase of a little under ten per cent. compared with last year.

* * *

C. & O. SUSPENDS RATE CHANGES

The Interstate Commerce Commission has suspended from October 16 until February 13 the operation of certain schedules published in Supplement No. 1 to Chesapeake & Ohio Railway, I. C. C. No. 9231. The suspended schedules propose to increase and reduce the rates on brick and related articles between points on the Chesapeake & Ohio Railway.

* * *

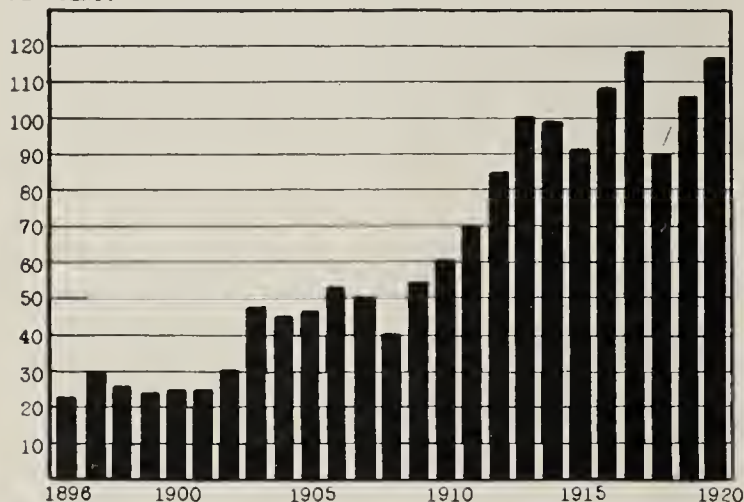
SOUTH WILL OPERATE THRU ENTIRE YEAR

Practically all of the southern brick plants are now operating at capacity with orders enough booked to insure steady operations for several months to come, and the outlook for the rest of this year and the early part of 1923 is better than it has been in years.

Settlement of the railroad and coal strikes has resulted in an increased building activity over the entire district that building men advise will doubtless continue thru the entire winter with little abatement. This will keep the southern brick plants going full blast.

Immediately following settlement of the railroad strike there was a material improvement in the available car supply and millions of brick that companies had been stocking in their yards were moved out to make possible further manufacturing activity. This continued for two or three weeks and then as cars were turned to grain shipment another shortage resulted that for a time seriously threatened the brick industries in this section again. This, however, has improved considerably the past two weeks. Some plants are able to secure nearly all the cars needed, while a few on certain railroads can obtain only about 15 to 20 per cent. of

PER CENT.



Hollow Tile Consumption in America in Per Cent. of 1913 Totals. Figures Obtained from Index.

HOW BRICK RATE AFFECTS SILO MEN

On October 20, J. S. Sleeper, Acting Secretary of the Hollow Building Tile Association, participated in the program of the Silo Division of the National Association of Farm Equipment manufacturers at the Congress Hotel, Chicago. He spoke on the traffic situation and pointed out the benefits that followed the decision in General Brick Case No. 10733. The 60,000 pound minimum hits the silo manufacturer hardest, as it requires two silos to reach this tonnage and a great many of their shipments are for single silos only. It was pointed out that their best interests would lie in accepting the 60,000 pound minimum and applying to the railroads for a higher rate on 50,000 and 40,000 pound loadings.

* * *

OIL PRICES OF LAST EIGHT YEARS

Prices of fuel oil in most sections of the country are determined to a large extent by those obtaining in Oklahoma. Fluctuations in price have been considerable and since 1915 the cost of fuel per barrel wavered between 30 cents and \$3.50. Following are the high and low marks reached each year since 1915 at Tulsa, Okla.:

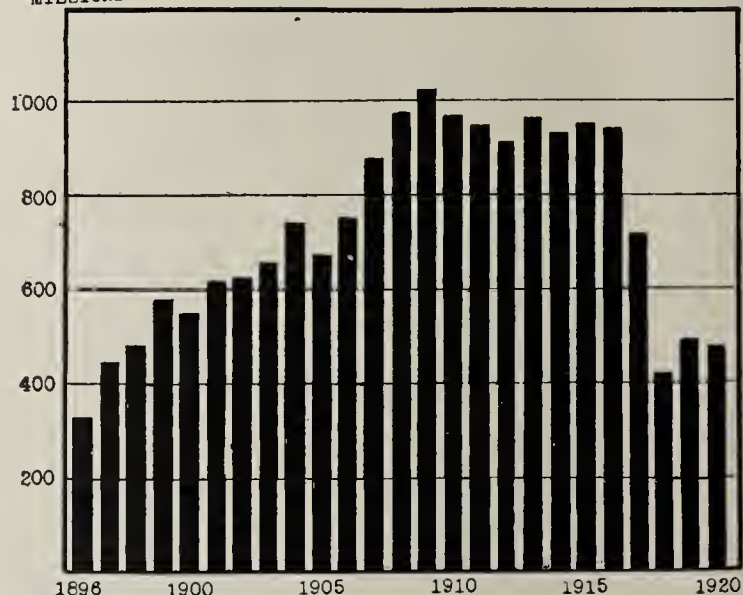
1915.....	\$0.30	\$1.00
1916.....	.55	1.25
1917.....	1.00	2.25
1918.....	1.25	2.25
1919.....	.80	2.50
1920.....	1.70	3.50
1921.....	.35	1.70
1922.....	.75	1.25

* * *

HAUL 10 PER CENT. MORE FREIGHT IN 1922

The record of railroad achievement for this year is notable, says American Railroads of October 18, 1922. From January 1 to September 30, 1921, the railroads of the country moved 29,155,147 freight cars loaded with all commodities. For the

MILLIONS



Production of Paving Brick in America During Last 25 Years. Figures Obtained from Index.

the number necessary. As a whole, tho, the industry is securing about 35 per cent. of its car requirements and the situation is improving rapidly. Within another month or six weeks conditions should be almost normal again.

The usual seasonal decline in demand has been noted of late tho it was not nearly as marked this year as ordinarily, and manufacturers state that orders now are remarkably good for this season of the year.

SOUTHERN EXPORT MARKET IMPROVING

With transportation problems rapidly improving since the settlement of the railroad strike southern manufacturers advise that there has been a steady improvement in the movement of brick for export to Latin-American countries, and that this business is getting back to something like a normal basis. For several weeks the export end of the business so far as the southeastern manufacturers are concerned has been a comparatively negligible factor. Conditions for exporting are improving considerably in Mexico, and there is a greater movement of brick to this market than in some time. Considerable quantities are also being sent to Cuba, where much building is going on due to the prosperity occasioned by a good year for the sugar industry. Other Latin-American countries are also offering fairly good markets for southern made brick and tile, most of the shipments going out by way of the ports of Mobile, New Orleans, Jacksonville and Savannah.



1921 SAND-LIME BRICK PRODUCTION

The Department of Commerce announces that the census reports show considerable decrease in the activities of the establishments engaged in the manufacture of sand-lime brick during 1921 as compared with the year 1919. The total value of products reported amounted to \$1,116,797 in 1921 and to \$1,663,052 in 1919, a decrease of 32.8 per cent.

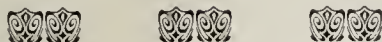
Six establishments, with products valued at \$315,605, which

reported at the previous census are not included in the 1921 figures for the following reasons: Three were out of business; 1 was idle; and two had changed the character of their products and were assigned to other industry classifications. Of the 25 establishments reporting for 1921, seven were located in Michigan, two each in Florida, Indiana, Minnesota, New York and Wisconsin; and one each in Georgia, Louisiana, Massachusetts, Ohio, Pennsylvania, South Dakota, Tennessee, and Texas.

The decrease in production has been accompanied by decreases in the number of persons employed, in the total amount paid during the year in salaries and wages, and in the cost of materials used.

There was considerable fluctuation in the monthly employment of wage earners in 1921. In October, the month of maximum employment, 449 wage earners were reported; and in March, the month of minimum employment, 257; the minimum representing 57.2 per cent. of the maximum. The average number of employed during the year was 349 in 1921 as compared with 504 in 1919. A classification of the wage earners with respect to the prevailing hours of labor in the establishments in which they were employed shows that for 68, or 19.5 per cent. of the total (average) number, the prevailing hours per week were 48 or less; and for 260, or 74.5 per cent. the hours per week were from 54 to 60 inclusive.

The combined output of all establishments was only approximately 49 per cent. of the maximum capacity, based upon a demand requiring full running time.



The Building Situation

Building statistics from the New England districts give encouraging aspects for heavy winter construction. Contract awards in the vicinity of Boston are well over \$3,000,000 weekly, while New England as a whole is giving out work to an amount of from \$5,500,000 to \$7,000,000 a week. A year ago contract work was averaging around \$4,000,000 at this season. Boston building permits aggregate from \$350,000 to \$500,000 weekly at the present time, and advanced work on architects' boards indicates continuance for the remainder of the year.

Connecticut operations are ranging from \$900,000 to \$1,200,000 a week, including all principal localities. Construction is considerably in excess of that at this same time a year ago when building permits totaled around \$400,000 weekly.

New York

The past fortnight has brought a noticeable recession in construction operations at Greater New York, due primarily to the lack of new speculative work. Private dwelling work is advancing, with homes costing from \$20,000 upwards; construction of this character is particularly strong in the Brooklyn district, absorbing a good volume of brick and burned clay products. Contract awards are now averaging from \$5,000,000 to \$7,000,000 weekly in New York City.

The common brick market at New York shows a lagging tendency with considerable decrease in sales since the first of October. The price, wholesale, is \$15 a thousand along-side dock, with highest grade common bringing \$16 at intervals. Shipments from the Hudson River yards are from 34 to 37 cargoes a week, with an average remaining stock of 25 cargoes weekly. Building material dealers are curtailing their purchases strictly in accord with demand.

The seasonal brick yards in the Hudson River district are gradually reducing operations in anticipation of closing down in about a month. Meantime, the fine weather is being placed to good advantage in the burning of green brick

and a general cleaning up for the winter season. Plants equipped with modern drying systems express the general opinion of continuous production thruout the winter months. A large number of men have left these parts for employment in other districts and as a consequence there is a keen demand for labor.

New Jersey

Construction operations are holding at a good level thruout New Jersey, with residential work in the northern part of the state helping to swell the high averages. Building contracts in the Newark district are running close to \$1,000,000 a week, including Orange and East Orange. At Jersey City, Hoboken and vicinity, contract awards are aggregating \$300,000 weekly, the bulk of distribution being centered in brick apartments.

The labor situation in the Raritan River section is a matter of great concern among the clay miners and manufacturers. Men are exceedingly scarce, despite the fact that high wages and all sorts of inducements are offered. A producer of fire clay in the Woodbridge district is now employing six men as against a normal working force of 30 men, and finds it impossible to secure additional help. There is a good call for clay production from this section, and many more tons would be shipped if men and cars were available.

Philadelphia

The last quarter of the year at Philadelphia has opened up in a strong manner in the construction industry, and gives evidence of reaching record-breaking proportions, helping to swell the exceptionally heavy volume of work that has been going forward since the turn of last spring. The local building department shows permits as high as \$1,700,000 in a single day, and it is estimated that the total volume of work of all classes for 1922 will top a \$100,000,000 figure.

(Continued on page 656)

Arrange Your Plans for These Meetings

Most National Associations Have Announced Date and Place of Annual Meeting—Two Canadian Organizations Meet Jointly

CONVENTION TIME is rapidly approaching and in another month the clay manufacturer will be dusting off his timetables and wrinkling his brow in an endeavor to find the proper train connections to "that meeting." Practically all the national associations have set the time and place for their meetings, the first of which will be that of the American Face Brick Association, on December 5, 6 and 7. Closely following this will be the meeting of the National Paving Brick Manufacturers' Association at Cleveland on December 12 and 13. So far as is now known, clay workers will get a rest after the paving brick meeting until January 24, which is the opening date of the joint meeting of the Canadian National Clay Products Association and Western Ontario Clayworkers' Association. This meeting closes January 26. The next meeting to gain the industry's attention will be that of the Common Brick Manufacturers' Association which convenes in Cleveland on February 5, 6 and 7. Immediately following this is the National Brick Manufacturers' Association meeting on February 8, 9 and 10. At the close of the N. B. M. A. meeting you will just have time enough to catch a train for Pittsburgh to be on hand for the American Ceramic Society meeting which begins February 12 and lasts thru the 17th. The four national associations whose custom it is to hold annual meetings and who have not as yet announced their meeting place and date are the Hollow Building Tile Association, Refractories Manufacturers' Association, National Terra Cotta Society and National Clay Products Industries Association.

The last three years have been restless years for business in general and the clay products manufacturer in particular and he has needed all the help and ideas he could get. Next year promises to be a big year and it will be wise for the manufacturer to rub elbows with his fellow clayworkers at the conventions to get the viewpoint of other men. No one man can know it all and no one can know too much.

Canadian Associations

As the result of considerable agitation and discussion the two big Canadian organizations, Canadian National Clay Products Association and Western Ontario Clayworkers' Association will meet in joint sessions at Hamilton, Ont., January 24, 25 and 26. Headquarters will be at Hotel Connaught where the best of service and facilities will be available. Being a joint meeting a large attendance is expected and to assure proper accommodations those wishing to attend should apprise the secretaries of their intentions.

American Face Brick Association

As announced in last issue of Brick and Clay Record, the American Face Brick Association has selected the West Baden Springs Hotel at West Baden, Ind., for its headquarters. Accommodations there will be of the finest at reasonable prices. The hotel will make a charge of \$8 per day which includes room and meals. The program has not yet been announced but the standard of Secretary Hollowell's

meetings is well known and delegates may be assured of an excellent convention. Eastern and southern delegates whose route lies thru Cincinnati are invited to be the guests of the Cincinnati Brick Club on December 4, the day preceding the opening of the convention. A special train will be run from Cincinnati to West Baden. Particulars are given in another part of this issue.

National Paving Brick Manufacturers Association

On December 12 and 13 Edward E. Duff, who will succeed Maurice B. Greenough to the office of secretary of the National Paving Brick Manufacturers' Association, will have



EDWARD E. DUFF

his first experience as the guiding spirit at a convention of the national association. The meeting will be held in Cleveland and the program is being outlined by Mr. Duff and Stanley A. Knisely, economist for the N. P. B. M. A. The convention will also be a farewell meeting for the retiring secretary, Mr. Greenough, who will become associated with W. M. Lasley of Chattanooga, Tenn., about the first of the year.

Common Brick Manufacturers Association

Plans for the convention of the Common Brick Manufacturers' Association were laid at a meeting of officers in Cleveland recently. The sessions will be held in the Hotel Winton

at Cleveland, Ohio, on February 5, 6 and 7. Preparations are being made for an unusually large attendance to what is expected to be the C. B. M. A.'s greatest meeting. In the previous meetings of this organization Secretary Ralph P. Stoddard promulgated a new activity of far-reaching importance and he will in all probability have some worth-while announcements to make this year. He is planning a series of demonstrations for the benefit of the members. The development of the program will be under the direction of president Charles H. Bryan of Detroit and Vice-President E. S. Barkwill of Cleveland.

National Brick Manufacturers Association

Following the C. B. M. A. determination to hold its meeting in Cleveland, officials of the National Brick Manufacturers' Association decided to hold the sessions of that organization's annual meeting in Cleveland also. The dates are February 8, 9 and 10, during the same week and immediately following the common brick convention.

American Ceramic Society

What will probably be the biggest convention of ceramic men, in point of attendance at least, is the American Ceramic Society meeting. This association will gather in Pittsburgh on February 12 and continue sessions thru February 17. Officials of the A. C. S. will endeavor to make this the greatest meeting in the history of the organization as it will also be the silver jubilee of that progressive association. The twenty-fifth anniversary of the A. C. S. will be celebrated at the meeting and to this end special preparations are being made. The Pittsburgh gathering in 1923 will be one long to be remembered and every effort will be made to make it a memorable affair.

REFRACTORIES ACCOUNTANTS DOING FINE WORK

The fourteen accountants who are members of the Refractories Accountants Institute went home after their meeting held in Chicago on October 23 and 24, with considerable added enthusiasm as to the value of their organization.

Real tangible reasons for the need and the desirability of meeting together is showing up in greater evidence in this organization and in shorter time than in most national associations. Constructive work that will benefit every attendant of the meetings is being taken up.

W. J. Westphalen, Laclede Christy Clay Products Co., St. Louis, representing the committee on overhead; R. E. Byrne, Ashland (Ky.) Fire Brick Co., representing the committee on factory labor cost, and F. W. Neuroth, Jos. Soisson Fire Brick Co., representing the committee on raw material labor costs, gave their respective reports which threw some light on some much needed information and which reports in all probability will be adopted with perhaps some minor changes at the next meeting of the institute.

E. E. Myers, Ironton (Ohio) Fire Brick Co., and J. G. Power, Elk Fire Brick Co., St. Mary's, Pa., gave talks on perpetual inventory and other forms for keeping track of production in its various phases. These talks were of intense interest.

G. W. Greenwood, United Refractories Co., electrified the accountants with a description of a system devised by himself which simplified considerably the matter of bookkeeping.

One of the members present at the meeting who had tried it out during the last three months declared that the system suggested by Mr. Greenwood cut down the time involved in keeping books fully 50 per cent. despite the fact that he already had in use a system accepted by many as a good one. More will be said about this system in future issues of Brick and Clay Record.

SET NEW JERSEY MEETING DATE

The New Jersey Clay Workers' Association and Eastern Section of the American Ceramic Society held an Executive Committee meeting in the assembly room at the new Ceramics Building, Rutgers College, New Brunswick, N. J., on October 16. A number of important matters were up for discussion, including the forthcoming annual meeting of the organization. It was decided to hold this on December 12 at the Ceramics Building, with morning and afternoon sessions.

A committee was appointed to act in an advisory capacity to Professor Brown in connection with activities of the Ceramics Department, this to be formed of LeRoy H. Minton, Leslie Brown, D. P. Forst, Robertson Art Tile Co.; C. F. Geiger, Carborundum Co.; T. A. Kleinfelter, J. L. Mott Iron Works; C. W. Hill, Conkling-Armstrong Terra Cotta Co.; and F. B. Allen, M. D. Valentine & Brothers Co.

Among those present at the Executive Committee meeting were: Abel Hansen, chairman; LeRoy H. Minton, George H. Brown, Charles A. Bloomfield, Charles Howell Cook, F. R. Valentine, August Staudt, C. T. H. Phillips, Leslie Brown, R. L. Clare, George Simcoe and D. P. Forst. Another meeting of the committee will be held prior to the annual gathering to perfect final arrangements for this important event.

INVITATION TO A. F. B. A. DELEGATES.

The Cincinnati (Ohio) Brick Club is making arrangements to eliminate all inconveniences of eastern and southern delegates to the American Face Brick Association's annual convention to be held December 5, 6, 7, at West Baden, Ind. The railroad service to the convention city is poorly arranged for east coming visitors, evening trains arriving at Mitchell, Ind., at 1:18 a. m., where it is necessary to transfer to the C. I. & L. This train does not leave until 6 a. m. The Cincinnati Club plans to have as its guests on the evening of December 4, all manufacturers and dealers who come thru Cincinnati. A special train, chartered under the auspices of the club, leaves at 9:30 in the evening with no stopovers, and arrives at West Baden in the morning.

While letters will be addressed to all prospective delegates, inviting them to be the guests of the club on the evening of December 4, individuals who do not receive this invitation are urged to make reservations by writing Maclean Remelin, secretary of the Cincinnati Brick Club, in care of the Chamber of Commerce. It is anticipated that 100 brick and clay men will take advantage of Cincinnati's hospitality.

MAKING REFRACTORIES FROM DOLOMITE

If the lime in dolomite can be combined so as to render it nonslaking and at the same time hold up the refractoriness of the material, the abundant deposits of dolomite in the country would be rendered available for extensive use as a basic refractory, according to the United States Bureau of Mines. Briquettes containing 90 per cent. dolomite and varying percentages of iron oxide and clay have been burned by the Bureau of Mines at the ceramic experiment station, Columbus, Ohio. Slaking time tests were run and the results plotted on a triaxial diagram. The slowest slaking mixture was selected for making into brick which were burned to a high enough temperature to render the lime inactive. Brick with a high fusion temperature and high specific gravity, great mechanical strength, and low porosity were the result.

How We Are Bettering Our Plant

"A Summary of Our Company's Accomplishments in Last Five Years Which I Gave at Our Last Monthly Dinner Meeting—These Meetings, by the Way Are Held Every Month and Attended by Department Heads and Members of Our Company from Its Three Plants and General Office"

Howard Frost

President, Los Angeles (Cal.) Pressed Brick Co.

WONDERFUL PROGRESS has been made by the Los Angeles (Cal.) Pressed Brick Co. within the last five years. During this time more constructive work of far-reaching importance has been accomplished than in any other 15 years in its history.

Five years ago when the work of bettering the plant was begun, the first and greatest need of the company was a progressive organization particularly in the manufacturing end. Some of the former plant operating heads looked upon labor

Mr. Frost says:

"I was very much interested in the editorial 'At the Fork in the Road' in Brick and Clay Record of September 19. You certainly have hit the nail on the head and I believe that the subject of Plant Betterment featured in the last two issues is of vital importance to the entire industry. For over 2½ years we have been consistently and persistently carrying out a campaign of cost reduction."

saving machinery and equipment with suspicion and distrust; considered the assistance of technical men, the use of graphic charts, pyrometers, CO₂ recorders, and so forth, a sheer waste of time and money; suggestions were usually taken as a personal reflection. Plant No. 1 was badly disorganized, lacking in discipline and was generally behind the times in equipment and methods.

Created a Real Organization

This was the situation five years ago. Conditions today, however, offer a decided contrast, and we now have a very efficient and well balanced organization doing real team work at all the plants, under the capable direction of Mr. Cake, the general superintendent. The men, as well as superintendents and foremen, take a pride and interest in the work that is reflected in improved quality and increased output, which far exceeds the best previous performance. With the production department, the sales, accounting and bookkeeping departments have also been strengthened and enlarged. Harmony is the rule thruout the organization and lack of it a rare exception. In line with enlarging our plants, several new departments have been added. They are: sales manager; purchasing agent; refractories chemist; production manager; assistant superintendent and storekeeper, each at plant No. 1; three ceramic engineers, head burner and yard salesman at plant No. 1.

Work Out Definite Plan

For several years it had been increasingly apparent to me that in order to place the business of the company upon a sound foundation, it would be necessary to make many changes and improvements in plant equipment as well as in

methods of manufacture. One noted authority made this statement, "If the management does not have the brains to see leaks and losses and to devise improvements there is certainly no hope." For the last 2½ years, a complete and thoro modernizing of machinery, equipment and methods has been and is going on, especially at plant No. 1. The complete remodeling, which it was planned to do, necessitated a definite and comprehensive plan along which changes could be worked out. To determine and work out such a plan, a great deal of careful study, planning, revising and investigation of many leading plants of the United States was necessary. As a result of this method of planning, all of our plants are today nearing the most advanced and successful practices of the industry.

Great Improvements Have Been Made

Some of the more noteworthy results accomplished in the improvement of the plants and equipment are:

Mechanical clay handling equipment at each factory.

Plants No. 1 and 2 electrified.

Waste heat drying, plants No. 1 and 2 were formerly direct heat.

Pyrometers installed at plants No. 1 and 4; plant No. 2 to be equipped soon.

Waste clay conveyors for every auger machine.

Increased use of Link-Belt chain drives.

Better fire protection, lower insurance rates.

Laboratory, new office and calcining kiln at plant No. 4 (by means of the latter we produce better grog for refractories at a saving of 25 per cent. over buying same from the railroads).

One of the reasons for the success of the Los Angeles (Cal.) Pressed Brick Co. is contained in these words of Mr. Frost:

"In March of this year our general superintendent and myself visited in all 35 plants in the following states: Iowa, Illinois, Missouri, Ohio, West Virginia, Pennsylvania and New Jersey. This visit embraced the well-known and successful plants of the various districts. This is only one example of how we have kept in touch with the latest developments in the clay products industry."

Clay handling equipment at our Alberhill property, that is ahead of anything in the clay industry in the West.

Remodeled Plant No. 1

Plant No. 1 had to be largely remodeled. Much obsolete frame construction was removed, the fire hazard reduced and appearance improved. More daylight and ventilation was provided, as well as better artificial lighting. Grinding ma-

chinery was centralized, instead of as formerly located in separate parts of the plant. A large fire-proof store room and up-to-date garage was added. New well-built stock sheds (instead of old ramshackle) were built and their location and arrangement improved. Duplication of stock was reduced. The most efficient machinery replaced a part of the former equipment, resulting in more and better ware at lower cost. In one case the daily output doubled and in another tripled with less men than before. Machinery for which we have no definite use was taken out. Clark Tructractors, electric industrial trucks, Barber-Greene portable brick loading conveyors, Jacklift trucks and vibrating screen are new and profitable investments that have been made. Modern sanitary conveniences were installed, besides hot and cold showers, lockers and drinking fountains, which will soon be added to plants 2 and 4 also.

Adequate Cost System Devised

Improvement of methods included an adequate cost system devised and put into effect by one of the foremost firms of national accountants and systematizers.

One of the most important improvements in methods was the standardizing of product at each plant. Five years ago we were attempting to manufacture at various times no less than 12 different lines at plant No. 1, as follows: Face brick, enameled brick, enameled mantel tile, roofing tile, glazed roofing tile, terra cotta, hollow tile, fire brick, fire blocks, silica brick, quarry tile and runner blocks. Today we produce only four lines: Face brick, enameled brick, roofing tile and terra cotta. Hollow tile and runner blocks are manufactured at plant No. 2, replacing sewer pipe, which line has been discontinued. As plant No. 4 manufactured fire brick and hand molded shapes, these products were eliminated at plant No. 1. In each case lowest cost of production, least interruption and fewer complications have resulted. Enameled mantel tile, glazed roofing tile, silica brick and quarry tile have been dropped. We now handle, as selling agents, the finest quarry tile produced in this country.

Substitutes Piece Rate for Day Work

Regular factory meetings and general monthly dinner meetings are held and have proven well worth while. Piece rate system has replaced day work, as far as practicable, at all plants and has resulted in far greater satisfaction to both men and company.

Secret formulas have been eliminated in the development and use of glazes. Our method of handling kiln production by means of a progress or schedule board makes possible systematic planning of setting and drawing for 15 days ahead. It reduces idle kiln days, insuring maximum kiln turnover. This will be illustrated and described in "Brick and Clay Record" soon. Fire drill recently instituted at plant No. 1 is soon to be followed at other plants.

Acquires Extensive Clay Holdings

In addition to those previously mentioned, there are three improvements of a general nature which are worthy of mention. Beginning last year and increasing since, we have been large shippers of our own clay and have thoroly developed and equipped mines at Alberhill and Oro Grande. Within the last year, after examining many properties, we bought 20 acres in Kern County; discovered and purchased 40 in San Diego County. For the first time the company is in a very strong position as regards its clay holdings.

We have new and larger offices and a display room which is one of the finest of its kind in the United States. We have entered a broader field of advertising that has proven very effective. In this respect we are pioneers, being the first in the clay industry on the Pacific Coast to advertise regularly in newspapers.

By applying the acid test of results the accomplishments of the last five years have been more than justified.

THERE IS A REASON AND "THERE'S A REASON"

The black loop and arrow around the top lines on the accompanying reproduction of an advertisement were drawn by us. It is a fortunate coincidence that we can point to the line in the advertisement, "There's a Reason" and have it fit in with our message.

The message is simply this: The persons who drew up this advertisement for the Postum Cereal Co., Inc., who by the way are large national advertisers, were impressed by the force with which the simile—a reference to brick—could bring out a thought they wanted to get across to the public.

Now, there were many other ideas that could have been used—but the brick house example came to their minds. Why, do you suppose? Ten years ago you would hardly see

Can you build a brick house without bricks?

If a man told you he was going to build a brick house without using any bricks, you'd think something was wrong with him, wouldn't you?

Well, then, what about the man or woman who plans to build a sturdy human body but neglects to eat the kind of food that builds that kind of body?

Many "refined" and denatured foods are lacking in the mineral elements which the body requires—especially for bones, nerves and teeth.

You do get the right mineral elements in Grape-Nuts—the delicious cereal food made from whole wheat flour and malted barley.

Every bit of the nutrition which Nature puts into the grains is retained in making Grape-Nuts. Lime phosphates, iron, magnesium, potassium—are all there. And then, too, there's that wonderful flavor and crispness that makes eating a joy.

Try Grape-Nuts with cream or milk for breakfast or lunch tomorrow, and see if you haven't been missing an unusually delicious and sustaining food. Sold wherever good food is sold or served.

"There's a Reason"
for Grape-Nuts

Made by Postum Cereal Co., Inc.
Battle Creek, Mich.

Advertisement Taken Out of a Daily Newspaper.

any reference to brick in this or similar ways. Advertising for brick which has been done in a national way has brought about a more general recognition of the product and has put that word back into the vocabulary of the populace. This is entirely separate from the direct value of advertising which is not touched upon herein.

There is a reason for the advertiser who uses the slogan "There's a Reason" to have used the brick example and we hope we have made it clear.



18 FEET MINIMUM WIDTH FOR ROADS

A minimum width of 18 feet for hard-surface roads is recommended by the U. S. Bureau of Public Roads. The maximum width of truck body generally permitted is 8 feet and 5½ feet is the ordinary clearance width of automobiles. At an average speed of 30 miles an hour it is unreasonable to expect the driver of an automobile to drive with the wheels closer than 1½ feet to the edge of the pavement, says the bureau. For trucks at an average speed of 15 miles an hour, this distance should not be less than 1¾ feet on account of the great width of the rear wheel. Three feet seems to be a minimum safe clearance between bodies. Inasmuch as a certain amount of truck traffic is to be expected on all main country roads, the minimum width of surface should be 18 feet to provide these clearances when an automobile meets a truck.

We Saved \$1.51 Per M by Using Oil

This, the First of a Series of Three Articles on Oil Burning,
Tells How Face Brick Are Burned with Oil on an Indiana Plant

E. A. Morse

President, Kulage Brick Works, Hobart, Ind.

Interest manifested in the subject of using oil for burning ceramic ware has never been greater in the whole history of the clay industry, both in this country and Canada, than at the present time. High prices and uncertainty of deliveries have made old king coal an object for hope of dethronement among a very large number of producers.

Manufacturers, from all sections, are alert to anything that is said or published on the subject. Clay plants, that have been using fuel oil in their burning systems, are being deluged with visitors and letters seeking information.

A larger consumption of gasoline in recent years, by reason of the greatly increased use of automotive power, has made it necessary for refineries of crude oil to distribute greater quantities of the by-products such as cylinder oil, fuel oil, and so forth. Price reductions have aided in the moving of greater quantities of these by-products.

Fuel oil is now a more reliable fuel with regard to stability of supply and price when compared to a decade ago. On the other hand, some of the oil refineries have adopted processes, whereby the fuel oil is subjected to treatment which yields from it a further quantity of gasoline and less fuel oil. However, there is undoubtedly a large supply of fuel oil which is still available. The scarcity of oil applies only to those

oils from which gasoline is derived and not to the crudes which yield fuel oil.

It is often cheaper to use oil in the kilns in burning brick, when at the same time it may be cheaper to use coal under the boilers. Accordingly, the economic point, where it is cheaper to use oil than coal, is reached sooner in kiln firing than in boiler firing. Thus, manufacturers of clay wares have an advantage in the purchase of oil.

Every clay plant cannot use fuel oil economically. On the other hand, there are undoubtedly a great number that could. And whether it would pay you in your plant to burn oil—is a matter dependent not at all on what anybody else says has happened in some other plant, but is dependent upon certain definite facts, most of them easily ascertained; such as, comparative heat values of the two fuels, the labor involved, size of plants, kind of kilns, possibility of speeding up burning, and so forth.

The following is the first of a series of three articles on oil firing of kilns. These articles contain the information that the concerns whose plants are mentioned have given representatives of Brick and Clay Record in request for data. The articles will help throw light on factors difficult to determine in comparing oil with coal; such as, reduction in labor, approximate fuel consumption and possibility of decreased burning time.

TWO DAYS' REDUCTION in burning time and \$1.51 per thousand brick saving in burning cost, has been the result of substituting fuel oil for coal at the Kulage Brick Works, Hobart, Ind. This change was made recently, and the figures which are even lenient towards coal show a 38 per cent. reduction in burning cost, which is directly traceable to the change from coal to oil.

The Kulage plant was fortunately situated with respect to changing over to oil burning. The equipment was already on hand, hence no outlay was required for oil burning equipment. Oil burning was tried at the Kulage plant about 12 years ago, but was later given up for some reason unknown to the present owners. Mr. Kulage, who built and operated the plant, maintained it in a high state of efficiency during his term of ownership.

The factory is fortunate in having excellent railroad facilities. It is on both the Pennsylvania and the E. J. & E. railroads, eight miles from Gary, Ind., and 35 miles from Chicago.

Formerly Made Dry Press Brick

Brick on this plant were at one time made by the dry press process on machines designed by Mr. Kulage who endeavored to improve on the type of machine operated by the Hydraulic Press-Brick Co. Several of these machines are at the present time standing idle on the plant.

Face and common brick are now made by the stiff mud method, dried in a combination waste heat and steam dryer and burned in rectangular down-draft kilns of unusual design. There are five kilns, each 90 feet long, and they are connected by large flues at each end to a high stack near the center of the kiln yard.

The kilns have a solid floor below the level of the yard and at each end are six openings or flues leading into the stack flues. The floor work, with flues running the entire length of the kiln and connecting with the end flues just described, is built with the green brick, setting them to form the flues. In this way a new floor is obtained each time a kiln has been set and the flues are regulated according to requirements.

The fire boxes are unusually large. There are 15 on each side of the kiln, each one measuring about 40 inches wide. The grate bars used when coal was fired were 50 inches long. About eight more inches bridge the gap between the end of the grate and the bag wall. Thus the distance from the mouth of the fire box to the bag wall is approximately 58 inches. In switching over to oil burning, the grates were covered with brick and clay plastered over it. The changes took but very little time and involved no complications.

Oil Stored in Steel Tanks

Oil is obtained from the Sinclair Oil Refining Co., whose refineries are only a short distance from Hobart. The tank cars of fuel can be had at very short notice. The oil is emptied by gravity into two large steel tanks or drums, each having a capacity of 12,000 gallons. They are connected by a pipe.

A steam operated pump draws the oil from the tanks and delivers it at a definite pressure to the burners. At the Kulage plant this pressure is maintained at 25 pounds. Steam furnished by the boilers at a pressure of 38 pounds is used for oil atomization. The pipe and burner arrangement is such that the equipment of each side of the kiln can be divided into three sections and easily removed and assembled



Interior of Kiln at Kulage Brick Works. Floor Is Built with Green Brick to Form Flues Which Connect with Permanent Flues Shown in Background.



Kiln Under Fire at Kulage Brick Works. Note the Clean Appearance of the Pavement Which is Possible with Oil Burning System.

at another kiln. By using the equipment in this manner, burners for only one kiln are needed.

When coal was used for fuel it took from seven to eight days to complete the firing of a kiln. The minimum quantity of coal used was 140 tons. Usually this amount ran somewhere between 140 and 150 tons. Since the kiln contents are usually about 300,000 brick, the fuel consumption in case of coal was approximately 933 pounds to 1,000 pounds per 1,000 brick. This is a very good showing for coal.

Moreover, when coal was used, two night burners and two day burners were required, besides the two men necessary to take care of coal and ash handling and distribution. The burners were paid at the rate of 40 cents an hour, while the coal unloaders were paid at the rate of 40 cents per ton.

Number of Burners Reduced to Two Men

In switching to oil, the coal unloaders were dispensed with since the engineer now attends to unloading the oil. This is a matter of only two hours and requires practically no attention except for coupling and uncoupling the tank cars. The number of burners has now been reduced to one day and one night man. Their wages, however, were increased to 55 cents per hour. The burning time was cut down to less than 5½ days. The fuel oil consumption is now approximately 17,000 gallons per kiln or 56 gallons per 1,000 brick. The temperature of the fuel oil is low, 118 deg. F., at the kiln burners. By raising the steam temperature, it is hoped to raise the oil temperature to about 160 deg. F., which will enable it to be burned almost as a gas. At least a 20 per cent. saving in oil consumption is anticipated by gasifying the oil before it is burned.

Coal, formerly used by this plant, was obtained from the Terre Haute, Ind., district at a cost of \$7.23 per ton delivered to the plant of which \$1.83 was freight. Oil, on the other hand, is obtained at \$.0408 per gallon.

I would not want to return to the use of coal firing. With oil, a better distribution of heat in the kiln is obtained, a higher percentage of No. 1 ware produced, and the plant is kept in much neater shape, besides obtaining a reduction in burning cost.

The daily capacity of this plant is 42,000. Most of this is face brick in colors varying from buff to red depending upon the mixture of clays used. Since the entire oil burning system was already on the plant, and purchased many years ago, I am unable to state what the cost of the system was.

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GOOD ROADS CONGRESS IN JANUARY

Arrangements are rapidly being perfected for the Thirteenth American Good Roads Congress and Fourteenth National Good Roads Show. These functions will be held by the American Road Builders' Association in Chicago, January 15 to 19, 1923, inclusive.

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WORKING OUT OXIDATION PROBLEMS

Fundamental data concerning the action of the incidental minerals found in clays during firing will be obtained by the Bureau of Mines, Ceramic Experiment Station, Columbus, Ohio, and, later, application made of the information so obtained to explain certain phenomena that occur with the clay body. It is hoped to throw light on the physical, chemical and thermal changes taking place in clay bodies between a temperature of 400 deg. and 800 deg. F., the so-called oxidation period. The work is a part of the industrial kiln investigation conducted in cooperation with the four heavy clay products associations. Data have been obtained on the dissociation and oxidation of sulphides found in clays. The work, it is hoped, will afford information on the so-called

COMPARATIVE TABLE—COST OF OIL AND COAL—.

OIL		COAL	
Kiln No. 1—9/30		140 tons @ 7.23.....	\$1,012.20
16,694 gal. @ .0408.....	\$ 681.11	4 firemen for 7 days.....	126.00
2 firemen for 5 days, 8 hours....	58.66	Unloading, etc. @ .40 per ton...	56.00
		1 2/3 days less time in burning.	
299,500 brick in kiln			\$1,194.20
Average cost per M for fuel.....	\$ 2.27	299,500 brick in kiln	
Total average cost.....	2.47	Average cost per M.....	\$ 3.98

"scum" developed on some red brick. Data for time, temperature, and atmosphere curves have been worked out in reference to the oxidation of the carbonaceous matter found in clays. Clays have been distilled and the products of distillation studied. Application of the data to a study of the so-called "bloating" of clay products is being made. This work has been conducted by G. A. Bole, physical chemist, F. G. Jackson, assistant chemist, and J. G. Phillips, junior ceramic chemist.



FAKE BRICK IS MENACE TO LIFE

Warning to home builders against forms of substitute brick as a menace to human life is contained in a report submitted by Prof. R. H. Danforth, of the Case School of Applied Science of Cleveland, after several laboratory tests. Prof. Danforth says he has found imitation brick made of sawdust and cinders bound together with various types of cementing substances.

Prof. Danforth states that he recently tested "brick" made of cinders and lime. His finding was that an average pressure of only 682 pounds was necessary to break one in half when supported at the ends, a real brick requiring an average pressure of 2,252 pounds to break it. The imitation brick also showed such an affinity for water that they absorbed over 28 per cent., and two specimens out of six swelled and bulged and developed cracks during immersion.



THEY STILL MAKE BRICK WITH STRAW

Work begins very early for children in the Near East and in Thrace they toil like the ancient Israelites at brick making.

Methods of manufacture, as evidenced by the picture can hardly be said to be modern. A brick plant there consists of a square box the size of a brick, water, clay and straw. The boys fashion the brick themselves and set them in the



Children of Rodosto, Thrace, at a Yard of Newly Sunbaked Brick Which They Have Made.—Photo by the Gilliams Service.

sun to bake. The hot sun quickly bakes them hard enough to use in building the simple dwellings which satisfy the humble wants of these people.



Clay Brick Is Still King of Quality Tests Show

BY TRADITION, by universal usage, and in the eyes of the law, the word "brick", unqualified by any adjective, designates a solid building unit of burned clay. Substitute or synthetic brick have made their appearance during the past few years, each kind carrying a prefix to designate the material from which it is manufactured. The properties of synthetic brick are of course, adversely influenced by the fact that they are not burned. The quality is also subject to much variation, and their soundness or otherwise cannot be judged from an inspection of the exterior. Unless a comparatively large number of samples is being continually tested a close check cannot be maintained on whether or not the workman responsible for adding the binding material delivers a full quota to each batch. This is in marked contrast to real brick which is, of course, all clay. It is quite interesting to check up from time to time the properties of

	Absorption Per Cent		Compressive Strength on edge, lb. sq. in.		Modulus of Rupture lb. square in.	
	Average	Individual Maximum	Average	Individual Minimum	Average	Individual Minimum
Brick.....	8.05	9.2	4285	3668	1321	1153
Lime cinder..	28.27	30.7	2135	1059	352	238

Two of the six substitute brick developed longitudinal cracks during the boiling for absorption, the faces bulging slightly as tho the lime was not completely hydrated. It is interesting to compare these results with the A. S. T. M. standards, listed in the table in the opposite column.

The standing of any set of brick shall be determined by that one of the three requirements in which it is lowest.

The substitute brick, it is apparent, would just get under the wire as a soft brick under the A. S. T. M. specification. Its weakness in transverse strength is especially interesting, inasmuch as studies of results on laid brickwork tested to destruction leave little doubt that built up piers or walls first begin to fail by the breaking of the brick under bending stress caused by their necessarily slightly uneven bedding in the mortar. The absorption of the substitute brick is also extremely high and the splitting and bulging of the brick during the absorption tests speak for themselves.—The Common Brick Manufacturers' Association of America.



A. S. T. M. TENTATIVE STANDARDS

A. S. T. M. Tentative Standards for 1922 have been issued in book form and are now available. This volume has just come off the press, comprises 174 pages, and contains 163 tentative standards. The volume can be had by applying to the American Society for Testing Materials, Philadelphia.

Grade of Brick	Absorption limits, Per Cent		Compressive Strength on edge, lb. sq. in.		Modulus of Rupture, lb. square in.	
	Mean of 5 tests	Individual Maximum	Mean of 5 tests	Individual Minimum	Mean of 5 tests	Individual Minimum
Vitrified.....	5 or less	6.0	5000 or over	4000	1200 or over	800
Hard.....	5 to 12	15.0	3500 or over	2500	600 or over	400
Medium.....	12 to 20	24.0	2000 or over	1500	450 or over	300
Soft.....	20 or over	No limit	1000 or over	800	300 or over	200

substitute brick as compared to the brick manufactured in the same territory.

Samples of brick and synthetic brick made from lime and cinders in Western Texas were recently sent to Case School of Applied Science, Cleveland, Ohio, for comparative tests. The summary of the tests, made on six specimens of each brick according to the specifications of the American Society for Testing Materials, is as shown in the following table.

FINE CERAMIC MANUFACTURE



A Department Devoted to Practical Problems in the Manufacture of Higher Grade Ceramic Products Such as Whiteware, Including Electrical Porcelain, Floor and Wall Tile, Sanitary Ware, etc., as Well as Stone-ware, Terra Cotta, Special Refractories and Other Articles Where High Grade Clays Are Employed in Their Fabrication.

GEORGIA'S CLAYS AND BAUXITES

NO PREVIOUS INVESTIGATION of clay deposits has equalled in extent and thoroughness that which has been in progress for more than a year by the Central of Georgia Railway, in its endeavor to determine the value of Georgia clays.

The investigation has been conducted in cooperation with the Columbus station of the United States Bureau of Mines and several thousand dollars have been spent in laboratory work. Samples from 25 locations in Georgia and comprising two tons of clay each have been shipped recently. Part of this is being put thru the regular methods of manufacture in a tile plant and also in a pottery.

The elutriation method of refining Georgia kaolins worked out at the Bureau's laboratory, has resulted in producing a clay equal in all commercial aspects to the English china clays now used for the manufacture of better whiteware. The investigation shows that Georgia affords an excellent location for the mining of kaolin and also for the establishment of fire clay plants. The steel mills in the Alabama territory offer a ready market and water shipments may be made thru the port of Savannah.

For some time there has been prevalent among the trade the idea the Georgia clays were not entirely satisfactory. The principal objection being lack of uniformity. This ob-

Editor's Note.—Brick and Clay Record is indebted to the Journal of the American Ceramic Society for the photographs appearing in this article.

jection may be readily overcome by properly refining the clays before shipment is made. The method referred to above is both economical and satisfactory.

Representatives of the Central of Georgia Railway, accompanied by a member of the Bureau of Mines and a representative of Brick and Clay Record recently visited Ohio and Pennsylvania plants where samples of the clay are being worked up. The tests will be completed in a short time.

In the September issue of the Journal of the American Ceramic Society was contained a fine description of the clays and bauxites of Georgia by R. B. Gilmore and A. H. Fessler. Because it gives an idea of the work being done to determine the value of Georgia clays and bauxites. The article is reprinted here.

The Clay and Bauxite Belt

"Thru the central part of Georgia, and traversed by the Central of Georgia Railway Co.'s lines, lies a belt known as the coastal plain containing large deposits of clays and bauxites. Besides this a small area occurs in the north-western part of the state. These deposits vary from typical kaolins on the one hand to high grade bauxites on the other. The belt is 225 miles long and varies from 20 to 50 miles in width. They are for the most part surface deposits with very little or no overburden, attaining a thickness in some places of 40 feet. Deposits of from 4 feet to 20 feet are common. The fields have been worked to some extent but never have been developed for the ceramic trade to the degree to which they are worthy. The railway company realizing this fact, and the great potential wealth of the deposits is carrying on an extensive investigation of these clays and bauxites thru a cooperative agreement with the U. S. Bureau of Mines. The Bureau in turn is cooperating with ceramic industries for making large scale practical tests to confirm the laboratory findings.



Good View of Pit Operations at Savannah Kaolin Co., Gordon, Ga. This Is Another One of the Georgia White Clay Mines.



Pit View of the General Bauxite Co., Nadine, Ga. This Is One of the Plants in Georgia's Kaolin and Bauxite Belt.

"The work has been in progress over a year and will be continued to completion. The tests are made on a semi-commercial scale in order to obtain practical data on the value of these materials for commercial purposes. Two ton samples from each of 24 of the most typical deposits were sent to the Ceramic Experiment Station at Columbus, Ohio, where tests are being made. The final phase of the investigation will be to put these clays thru the commercial practices for which they appear to be best suited as indicated by preliminary laboratory tests.

Investigate Pottery and Refractory Clays

"The clays, roughly classified into two types, are included in the investigation, namely, those suitable for pottery and allied products and those suitable for refractories. The main investigation on the white burning clays consist of developing improved refining methods with the objects in view of eliminating undesirable impurities and producing a more uniform product. In the refractory work, both small and large scale tests are made to determine the behavior of the raw materials under manufacturing practice and serviceability tests are to be made under actual furnace conditions.

"Preliminary tests were first made on the samples to determine the physical properties of these materials in order to indicate the purposes for which they are best suited. The tests included shrinkage, both drying and burning, porosity, burned color and fusion temperature on raw material together with viscosity determinations on the slips. The viscosity tests

were made to determine the proper amount of caustic soda to be used in the washing so that the most efficient separation of impurities might be obtained.

Machinery Employed

"Besides a blunger, agitator, filter press, and other auxiliary machinery commonly used for preparing the slip and collecting the washed clay, the clay washing apparatus consists of two elutriating cans and a 'whirlpool' clay separator built according to design of R. T. Stull, Supervising Ceramist of the U. S. Bureau of Mines. This separator is in effect an elutriator in which the slip enters tangentially and near the top instead of thru a pipe down the center to near the bottom. A whirlpool action is caused which throws the coarser particles toward the center and down, where they are collected in a container attached to the bottom of the can. The elutriating cans are large, each being four feet high, one is three feet and the other five feet in diameter. The capacities are 165 and 450 gallons respectively. The arrangement is such that the slip after passing thru the screens is then passed thru the separator, then thru the elutriating cans and finally the overflow from the large can is caught in a 750 gallon settling tank.

"A thousand pounds of clay are blunged at which time caustic soda is added to accomplish deflocculation and when blunging is completed the slip is passed thru a nest of standard screens, Nos. 8, 20, 65, 100 and 150. It is then pumped into an agitator overhead and run thru the washing



Edgar Brothers Kaolin Deposit at McIntyre, Ga. This Plant Is Almost in the Exact Center of the State.

system, a constant head being maintained to assure a constant rate of flow.

Whirlpool Separator Proves Effective

"There are five separations derived in this operation after the clay slip has passed the 150 screen. The majority of the impurities are contained in the first one, or the residue in the grit collector of the 'whirlpool' separator, while the separate, or material deposited in the settling tank, is in most cases practically free from impurities, consisting almost entirely of kaolinite. The apparatus has produced very favorable results and unless the impurities are in an extremely finely divided state they may be removed, producing a clay which burns to almost a snow white color and free from small objectionable specks. A slight trace of very fine quartz grains in some cases was the only foreign material found in the washed product, when examined under the microscope. The 'whirlpool' separator, besides removing the fine grit, also removes the thin mica flakes which are not eliminated under present clay-washing practice. The recovery of valuable clay is also higher.

"Such pleasing results have been obtained in some of the samples washed that several hundred pounds of refined material have been sent to manufacturers making various kinds of whiteware in order to test the pottery making properties of these refined clays in a practical way. The clay will be put thru actual commercial practice in the manufacture of pottery, wall and floor tile and electrical porcelain. In this way the working, drying and burning properties may be ascertained in the plastic, dry press and semi-dry press process. This phase of the work is to be of such an extensive nature that complete data on the clays tested may be available for users of white clays.

Study of Refractory Clays

"After the washing investigation has been completed at the Ceramic Station, it is planned to remove the washer to some point in Georgia and continue the work on a practical basis. Work will also be done, either at the station or in Georgia after the washer has been set up there, on the dewatering of clay slips by methods other than filter pressing.

"Altho the refractory study has only been started, sufficient work has been done to determine which clays are particularly valuable for refractory purposes. The laboratory work, thus far, in this connection has been confined largely to fusion, spalling and load tests.

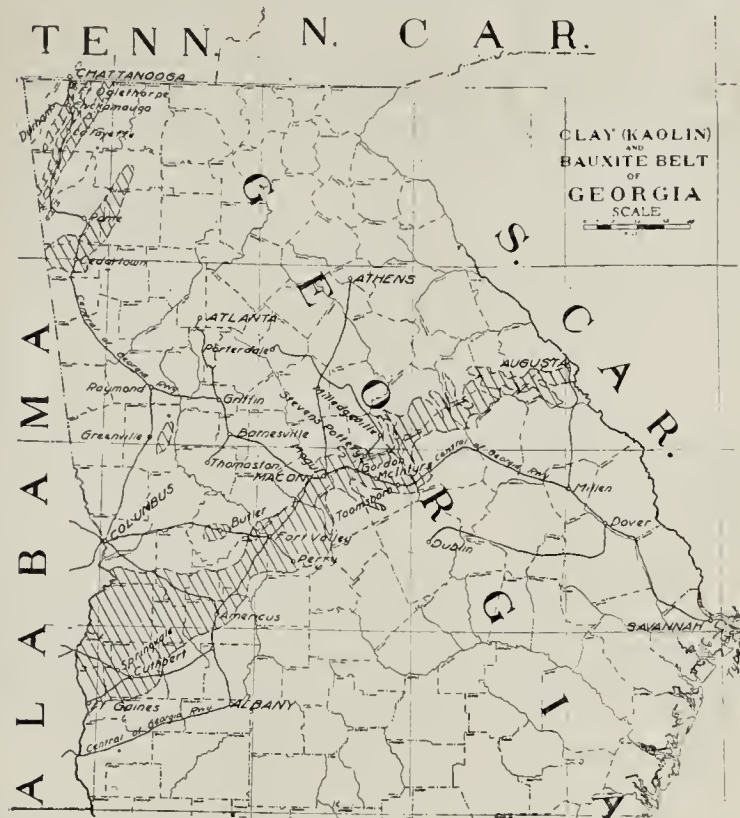
"The samples chosen for this study were divided into three classes, those properly classed as (1) clays or kaolins; (2) bauxitic clays; and (3) bauxites. Besides the bauxites, nine clays and five bauxitic seemed worthy of investigation for refractory purposes. To supply the grog for the refractories made from clays (Class 1) samples of these clays were calcined to cone 14 and ground to pass a No. 10 mesh screen. 60 per cent. of each grog thus prepared was mixed with 40 per cent. of the same raw clay to serve as the bond. Brick of the standard size were made of these mixtures by the dry press process and burned to cone 14. The porosities were determined on the whole brick by the gas expansion porosimeter and the brick subjected to the standard spalling test. Ten quenchings were made and the loss in weight taken as an indication of the resistance to sudden temperature changes.

Fire Brick Withstand Severe Spalling Tests

"Load tests at furnace temperatures were also made on some of the fire brick which indicated remarkable resistance to spalling. Some phenomenal results were obtained in the load tests and in two cases especially the results of the spalling tests were far above the average fire brick, the spalling loss being less than 0.60 per cent. In the fusion tests not one of the samples gave a fusion temperature below cone 34, approximately 1,740 deg. C. or 3,164 deg. F.

"The samples of bauxites and bauxitic clays were made into brick in the same manner except that the grog samples were calcined to cone 17. Because the raw materials were low in plasticity and bonding strength, one of the clays of good plasticity which had given high scores in the fusion, load and spalling tests was selected as the bond. 70 per cent. of the calcined material was mixed with 30 per cent. of the bonding clay molded dry press and burned to cone 16.

"The clays which showed exceptionally good results in these tests will be tested in a practical way on a much larger scale. A carload of one of the most promising clays has been shipped to a well known fire brick plant where it is to be made up into standard refractories. Arrangements



Map of Georgia; Shaded Portions Indicating Location of White Clays and Bauxites.

have already been made to test these refractories for locomotive arches, malleable iron furnace bungs and electric furnace linings. A sample has been sent to the Bureau of Mines Experiment Station at Seattle, Wash., where it is to be sintered, made into refractories and tested as a lining in an electrically heated high temperature metallurgical furnace. Altho the work at the present time has not been completed, enough has been done to indicate the ceramic possibilities of this extensive belt of clays and bauxites.

* * *

NO HOPE OF STRIKE SETTLEMENT YET

The strike of the general ware pottery workers is as far from settlement today as it was when they bid their benches adieu. There has been no meeting of the Labor Committee of the United States Potters' Association since the strike became operative October 1, neither has there been a conference of the association as a whole.

Many pottery employes have been heard to remark that seven per cent. increase in wages is too small to strike for, but, the strike should have been "put over" when the reduction in wages was authorized in 1921. This, however, comes from the side of the employes.

The manufacturers' side is clearly shown by the report of the Labor Committee of the U. S. Potters' Association, issued just after the joint wage conference at Cleveland, reading:

"* * * further reductions were immediately made in the selling lists until we reached a level of approximately

28 per cent. below the selling prices of the spring months of 1921. The cost of raw materials decreased but slightly, and of fuel not at all, so that about all we had to assist in bearing a cut in market prices of 28 per cent. was the 17 per cent. wage reduction. The balance came out of profits, with the result that the average earnings of the manufacturers fell off about 75 per cent. In other words, while the men accepted a reduction of 25 to 30 per cent., we stood a cut of 75 per cent., which was fully our full share."

* * *

SANITARY WORKERS REJECT WAGE OFFERS

Sanitary Pottery Workers for the second time voted to reject the offer of the Sanitary Pottery Manufacturers to accept a reduction of ten per cent. in wages. The vote of the different locals was not given out, only the statement that the proposition of the manufacturers had been rejected by the employees. The vote means that the Sanitary Potters rejected all propositions of the manufacturers to take a reduction in wages. The present wage scale in the sanitary pottery industry expires November 1, when approximately 3,500 brotherhood members will cease work unless something occurs in the meantime to prevent suspension.

* * *

J. T. SMITH DIES

J. T. Smith, president of the Smith & Phillips China Co., East Liverpool, Ohio, died at his home recently. He entered the pottery industry about 35 years ago when the Smith & Phillips Co. was organized. The body was interred at East Liverpool.

* * *

MORLEY WILL MANAGE NEW SEBRING PLANT

Samuel Morley of the Sebring Pottery will manage the new Crescent Pottery near Alliance, Ohio, it was announced recently. Mr. Morley has had considerable experience in such work and is an all-round pottery executive.

* * *

SANITARY WARE MEN INDICTED

23 potteries and 24 of their officers, members of the Sanitary Potters' Association, have been indicted under the Sherman anti-trust law on charges of price fixing and unlawfully restricting their sales to specially selected jobbers. The indicted members, it is said, control 85 per cent. of the sanitary ware industry in the United States. The case will go to trial at an early date, according to attorneys.

* * *

BUILDING PLANT ADDITION

The Economy Pottery Co., Bunting Avenue, Trenton, N. J., manufacturer of sanitary earthenware products, will commence the immediate erection of a new one-story plant addition.

* * *

MERCER POTTERY SUSTAINS FIRE LOSS

The plant of the Mercer Pottery, Muirhead Avenue, Trenton, N. J., was damaged by fire, September 19, with loss including boiler department and other branches of the main four-story pottery. It is planned to rebuild at an early date.

* * *

ALLIANCE CHINA EXPANDING

The Alliance (Ohio) Vitreous China Co. has decided to increase the capacity of its plant and will make it a three-story factory. Additional kilns will be erected. The work will be complete prior to April 1, 1923. The working force

is to be nearly doubled. The company will increase its capital stock and contemplates building another plant for the making of the same class of ware near Plant No. 1. With the two plants in operation the concern will employ more than 400 potters.

* * *

BUILDING PLANT ADDITION

The Wheeling (W. Va.) Mantel & Tile Co. has let the contract for the erection of a one-story addition to its plant at a cost of \$11,385.

* * *

TO BUILD 11 KILN ADDITION

Ground has been broken for the erection of an 11 kiln unit by the Owen China Co., of Minerva, Ohio, which concern is under the active management of Charles W. Foreman. The company has been compelled to increase its capacity because of branching out in the dinnerware business, and serving a wider territory. Production is expected to be obtained probably early in the spring of 1923.

* * *

ENLARGING SANITARY WARE PLANT

Because of the increased demand for sanitary ware on the Pacific Coast and in far western territory, the plant of the San Pablo (Cal.) Pottery Co. is to be enlarged. Perhaps 20 or 25 additional workers will be employed, these including pressers and kilnmen.

* * *

FORM CERAMIC PRODUCTS CORPORATION

The Ceramic Products Corporation of Old Bridge, N. J. has filed articles of incorporation to manufacture and deal in all kinds of clay products. The capitalization is \$200,000. Gerald M. McLaughlin, Newark, T. Bryant Smith, Long Branch, and Conover English, Elizabeth, are incorporators.

* * *

PLAN TO REBUILD BURNED PLANT

The Wildden Pottery Co., 711-15 Wharton Street, Philadelphia, Pa., manufacturer of flower pots and other pottery specialties, is planning for the rebuilding of the portion of its plant recently destroyed by fire, with loss estimated at about \$25,000.

* * *

PORCELAIN COMPANY FORMS IN CHICAGO

The Superior Porcelain Products Co., 138 North La Salle Street, Chicago, Ill., has been formed under state laws with a capital of \$5,000, it is stated, to manufacture porcelain products for domestic service. The company is headed by G. J. and James H. Davis.

* * *

NEW POTTERY IN WEST VIRGINIA

With a capital stock of \$25,000 the Williamstown (W. Va.) Pottery Co., has been formed. The town is on the West Virginia side of the Ohio river, directly opposite from Marietta, Ohio. The new company is composed of George Bills, Jr., John W. Wells, Benj. Bunner, Jones M. Pyatt and John D. Sweeney.

* * *

STANDARD TO ENLARGE ATLANTA PLANT

The Standard Sanitary Manufacturing Co., of Pittsburgh, Pa., which company operates sanitary potteries in different parts of the country, plans extensions to its plant at Atlanta, Ga., where greater attention is to be given to the porcelain industry.

Cyclopedia News

Devoted to Enlarging the Usefulness of the CLAY PRODUCTS CYCLOPEDIA

Published by
INDUSTRIAL PUBLICATIONS, Inc.

407 S. DEARBORN STREET
CHICAGO, ILL.

AVERAGE DEPRECIATION FIGURES DETERMINED

Good accountants do not advocate a uniform or blanket rate of depreciation for all parts of a plant. If a man is inexperienced in our industry he must estimate his depreciation, and often he finds that he is wrong. It takes years and years of experience to determine the rate accurately. This experience has been called upon and used in determining the average rates, as shown on page 157.

SPECIALS FROM THOSE WHO USED CATALOG SPACE

The American Pulverizer Co. had a pleasant visit a short time ago from a man who walked into their office in St. Louis and announced that he had traveled all the way from the Sunny South to inspect their ring pulverizer. This trip was made as the result of seeing their catalog on page 203 of the Clay Products Cyclopedia.

EXACT INFORMATION ON CONCRETE CONSTRUCTION

The repair and construction period always entails the use of more or less concrete for foundations, retaining walls, wheelways and other purposes. On page 151, we find a table showing the amounts of cement, sand, and aggregates, either crushed stone or gravel, that are required for varying proportions of concrete. There are also suggestions for the proper mixtures to use under certain conditions.

Page 172 contains exact data on foundations, how much weight should be placed on various types of soils, how to lay out a square corner, and how to check a rectangular foundation for correctness.

WHAT THE EMBLEM SIGNIFIES



This monogram or emblem appearing in any advertisement in a periodical is an index or indication that the advertiser's catalog appears in the Cyclopedia. A number directly beneath this monogram denotes the page of the catalog.

EVERY PHASE AND STAGE OF BURNING FULLY COVERED

Burning of clay wares is one of the most important steps in the process of a finished product. In fact it is estimated that on an average one-third of the cost of making any clay ware is represented by the burning cost.

The increase in the cost of fuel makes the burning cost of even more important consideration than heretofore. The different stages of burning, and the many causes and effects that exist should, therefore, be studied thoroly.

Pages 8, 9, 10, and 11 of the Clay Products Cyclopedia contain prac-

tically all of the information required on these subjects. The several stages of watersmoking, dehydration, oxidation, and vitrification are fully and completely explained. In addition, the test for burning behavior, the important factors in burning, notes on comparative methods of transmitting heat, results of overfiring and time-temperature factors are completely covered.

These items should be read and studied by every manager, superintendent, foreman and burner, in order to produce the best quality of ware with the least cost.

It is considered an axiom that the method of burning can make or break the profits of any clay working plant.

OUR COMMENT DEPARTMENT

MOTHER OF ALL. FIRST FIRE BRICK PLANT ERECTED IN PORTSMOUTH DISTRICT
ALL CONTRACTS SUBJECT TO STRIKES, ACCIDENTS OR OTHER CAUSES BEYOND OUR CONTROL. QUOTATIONS SUBJECT TO CHANGE WITHOUT NOTICE
WABASH 8813

PORTSMOUTH FIRE BRICK COMPANY THE PORTSMOUTH REFRACTORIES COMPANY

MANUFACTURERS OF
HIGH GRADE FIRE BRICK

GENERAL OFFICE
PORTSMOUTH, OHIO

AND
GROUND FIRE CLAY
CONTINENTAL & COMMERCIAL BANK BLDG.
208 SO. LA SALLE STREET

W. L. MITCHELL, PRES.
W. B. MITCHELL, GEN. MGR. & SECY
FRANK J. SILHA, SALES MANAGER

CHICAGO, October 20th 1922.

Clay Products Cyclopedia
407 So. Dearborn St.
CHICAGO.

Ref. CLAY PRODUCTS CYCLOPEDIA.

Att: Mr. H.V. Kaepfel

Gentlemen:

You named it right. "It's the Clay Man's Manual"
It contains informatipn valuable to the Clay Industries,
with Subject definitions featured through-out esential
to Manufacturers of Clay Products.

"A WORLD BEATER IN CLAY DOPE".

Yours very truly,

The Portsmouth Refractories Co.

Frank J. Silha
Vice Pres.

FJS.A

The
Buckeye
Clay
DiggerImmediate
Shipment

Two savings—

In digging	1
In thorough mixing	1
They're yours with a Buckeye	2

Make us prove it

Ask for Catalog about Buckeye
Gasoline and Electric Clay Diggers

The Buckeye Traction Ditcher Company

Manufacturers also of Buckeye Traction Tile Ditchers

Findlay, Ohio

Branch Sales Offices

New York
San Francisco
Tulsa, Okla.Miami, Fla.
Chatham, Ont.
ChicagoLos Angeles
Denver
Mason City, Ia.
Salt Lake City

The Letter Box

A Place Wherein Letters
That Have General In-
terest Are Published
and Commented Upon

SOUND ADVICE FROM EXPERIENCE

One of the country's prominent clay machinery and equipment manufacturers, who has been following Brick and Clay Record's Plant Betterment campaign, has expressed some very fine ideas on this subject. The letter expresses an opinion which is in entire accord with the preachments of Brick and Clay Record, and is worthy of the attention of every manufacturer. The comments are reprinted herewith:

"We are not only in accord with your Plant Betterment campaign, but from our knowledge and experience we know you are right. It takes a great deal of courage to go at a group of manufacturers and tell them—'No Dividends for 1922—Put Your Money Back into Plant Betterments,'—but nevertheless it is the wisest and best thing you ever said. You will win out in the end tho, because you are right. It is the same thing when one goes to a doctor and he prescribes some very strict diet, or the giving up of some habit that you prize very much. Or if he realizes the seriousness of the case and you don't and he prescribes measures that seem out of all proportion to the present ailment, you don't think very much of him at the time, but if you follow out his course and recover you think he is the best man you ever ran into. That is just about the case with the brick manufacturers.

"The brick industry has been sick for a long time. Building has been at a low ebb and the war closed many a brick plant. Cost systems and the word 'overhead' were little understood. For many years there has been no real money made in the brick business. It is just as a friend of ours said to us the other day:

"Our family has been making brick for several generations and during most of those years we made next to no money. We made a living; had good homes; set a good table and had a few pleasures, but did not accumulate anything. In the last two years we have made and accumulated more money than in all the rest. Why?—because we put our plant on a business basis. We had ourselves appraised. We found out just what our investment was; just what our equipment stood us, and what our proper depreciation charges should be. We had our plant laid out and machinery looked over by a modern, up-to-date, brick plant engineer—a man whose family had been building brick plants for very nearly as long as we had been in the brick business, but he was an engineer and had kept abreast of the times, and knew the best practice of all the rest of the plants in the country. He showed us where by investing some thousands of dollars in labor saving machinery we could cut our costs, increase our product, and at the same time make a better brick than we had ever made before. We followed his advice, and not only got back all we had spent but much besides, and now feel that we are in a position to go ahead for years to come intelligently manufacturing brick."

"His story is only typical of many others that we have heard.

"We know that the fundamental waste in all brick plants is that of hand labor. In the old days clay was dug up by hand, prepared by hand, and almost every operation necessitated hand labor. Slowly as the industry grew and expanded, steam shovels dug the clay, dump cars and hoists hauled it, preparing machinery ground it up and removed the stones, and machinery made the brick, but even up to a couple of years ago there was still considerable waste because hand labor had to bump and dump the brick, and take them away from the machine to the dryers. Today brick cannot be made with profit, unless every last possible ounce of hand labor is removed, and that means the installation of labor-saving machinery.

"You are dead right. 'No Dividends for 1922. Put Your Money Back into Plant Betterments.' Your readers may not like it at first, but if they will only do it they will find out just how right you were; and thank you for urging them to take a step that they wanted to, but didn't quite have the courage."

HUM-MER
Electric SCREEN

Makes screening and crushing more profitable. Screens any material, wet or dry, from 2½" opening to minus 200 mesh

Send for Catalogue No. 45-B

THE W. S. TYLER COMPANY
CLEVELAND, OHIOManufacturers of Woven Wire Screens
and Screening Equipment

In the Wake of the News

**Being Brief Mention of a Host
of Interesting Happenings in the
Varied Fields of Clayworking**

PETER M. McBEAN DIES IN CALIFORNIA

One of the veteran pioneers of the brick and clay industry in the West has passed to his final rest. This was Peter McGill McBean, the founder of Gladding, McBean & Co., Lincoln, Cal. Thursday, October 5, he passed away suddenly at the Fairmont Hotel, where he had been living for the past 14 years. He was 78 years of age, and had been having trouble with his heart, but his physician had thought him sufficiently able to be allowed a number of auto rides. He came with his family from Canada in 1875, and immediately took an important part in the business, civic and social life of San Francisco. At his death he was a member of the Pacific Union Club and Burlingame Club. Besides his son, Atholl McBean, who is now president of the San Francisco Chamber of Commerce, he leaves a widow, and a daughter. It is needless to say, he leaves a large circle of former business friends and others to regret his passing.

DEATH OF A. A. LUCKEY

Albert A. Luckey, 76 years old, retired brick manufacturer, and well known in Southern Ohio in the industry, died at his home in Cincinnati. Worry over the death of his wife is the cause attributed to his sudden demise. Mr. Luckey is survived by three daughters and a son John J. Luckey, Canal Zone, Panama.

H. C. KLEYMAYER ADDS TO DUTIES

Henry C. Kleymeyer, of Evansville, Ind., head of the Standard Brick Co., has been elected vice-president of the Ohio Valley Improvement Association at the annual meeting of the association at Louisville, Ky.

F. J. SILHA BECOMES VICE-PRESIDENT

Frank J. Silha, formerly sales manager of the Portsmouth (Ohio) Refractories Co., and the Portsmouth Fire Brick Co., has been made vice-president of both companies and a member of the board of directors. He will remain in charge of sales for the company and will continue as manager of the Chicago Division.

Mr. Silha has been connected with the clay industry for over 16 years, starting with Jenkins & Reynolds of Chicago in 1906. Later he was with Bonner & Marshall also of Chicago, gaining considerable experience in the dealer end. Leaving Bonner & Marshall, he became assistant general manager of McLaughlin Building Materials Co., Chicago and later sales manager of the Chicago Fire Brick Co.

His broad experience in the fire brick industry placed him in the capacity of sales engineer while with Portsmouth Refractories Co. With his qualities as salesman he has also combined a knowledge of the production end which has been invaluable in defining the needs of the customer.

The Portsmouth Refractories Co. and Portsmouth Fire Brick Co. have a capacity of approximately 200,000 brick (9 in. equivalent) daily. The companies are equipped to make any kind of refractory, whether it be an ordinary brick or the most intricate fire clay shape.

WILLIAMS TAKES OVER BENNETTSVILLE PLANT

F. Graham Williams, president of the F. Graham Williams Brick Co., of Atlanta, advises that the company has taken



**Dryer, Transfer and Clay Cars,
with Flexible Bearings.
Switches, Turntables and Track.
THE CHASE FOUNDRY & MFG. CO.
COLUMBUS, OHIO**

CHASE

**WOULD YOU LIKE TO
MAKE BETTER
BRICK
?**

**USE R. & H. PRECIPITATE CAR-
BONATE OF BARIUM TO PRE-
VENT SCUMMING AND THEREBY
PRODUCING BRICK THAT ARE
RICHER AND DEEPER IN COLOR,
CLEANER AND CLEARER IN AP-
PEARANCE.**

**IF YOU ARE TROUBLED WITH
SCUMMING, WRITE US TODAY
FOR CIRCULAR.**

**THE
ROESSLER & HASSLACHER
CHEMICAL CO.,
NEW YORK**

CHICAGO
BOSTON
PHILADELPHIA

TRENTON
NEW ORLEANS
PITTSBURGH

KANSAS CITY
CLEVELAND
SAN FRANCISCO



LABOR SHORTAGE!

WHAT WILL IT DO TO YOUR BUSINESS?

The day of the old unskilled labor with a pick and shovel, ready at a moment's call is gone. Every job in the future will require more machines and fewer men if the work is to be done at a price commensurate with buying power.

The Poidometer will replace your pug mill man—eliminate him entirely—and mix and temper your clay more accurately and with unequalled speed.

*Our engineering staff
explain in detail.*

**SCHAFFER ENGINEERING
and EQUIPMENT COMPANY**
2828 Smallman Street Pittsburgh, Pa.



239



More Heat Per Pound of Coal, Even Temperatures LESS COST

Competition and popular insistence for lower prices is forcing the clay products manufacturer to scrutinize his costs in nearly every department.

What of your burning, Mr. Manager? Are you getting maximum heat from each pound of coal?

Marion Portable Kiln Grates will help you to reduce your fuel costs, improve quality and save labor.

Ask for descriptive details.

**MARION MACHINE FOUNDRY
& SUPPLY CO.**

P. O. Box 395

Marion, Ind.

over production of the Bennettsville (S. C.) Brick Co., manufacturers of lines known as Carolina Rough Texture brick and Art-Tex brick. The capacity of this plant is approximately 40,000 brick daily.

ADD NEW LINES TO SELLING LISTS

The Keeling-Cassidy Brick Co., of Atlanta, Ga., advises that it has taken on two new lines the past month and now carries a full line of all face brick and burned clay products. This company is handling sales of the Brick & Tile Corporation in the Atlanta territory, and also district sales of the Heath Unit Tile Co. On November 1 the Keeling-Cassidy Company will move from the Candler Building to larger quarters at 234 Peachtree Street, where sales and display rooms will be maintained.

SHIPS TO BRITISH HONDURAS

The Roper-Strauss-Ferst Co., manufacturer of hollow tile and brick is operating the plant in North Birmingham, Ala., on full time. This plant has recently been enlarged and is now one of the biggest plants of the kind in the Birmingham district.

"Owing to the railroad strike we are experiencing much difficulty in getting sufficient railroad cars in which to ship our products away from Birmingham," said manager Strauss. "However, shipping conditions are improving to some extent, he said.

"The entire South is several years behind with its building program, and it is going to take a number of years to catch up. Therefore we may look for a big demand for clay products and building material of all kinds in the South for the next several years at least," Mr. Strauss said.

He stated that his company had just completed the shipment of two large orders for hollow building tile to Ceiba and Pentroletz, British Honduras, Central America. Both of these orders were for large hospital buildings, and his company furnished all of the tile which went into both buildings.

EXPECT NO CHANGE IN ATLANTA PRICES

Prices in the Atlanta, Ga., district generally appear to be holding comparatively stable, tho common brick has been slightly off the past two or three weeks, the reductions amounting to about 50 and 75 cents per thousand. Most manufacturers in that section are expecting prices to continue stable until the early part of 1923.

HAWKINSVILLE, GA., PLANT SOLD

Reports recently received state that the brick plant at Hawkinsville, Ga., has been purchased by Messrs. J. E. and O. R. Jelks of Macon. The plant will be operated under the name of the Ocmulgee Brick & Tile Co. Twenty-five men are employed and approximately 25,000 brick turned out daily. The company has ordered machinery for the manufacture of tile.

LOOGOOTEE GETS R. R. INDEMNITY

The Director General of Railroads has been ordered by the Interstate Commerce Commission to pay \$742.94 to the Loogootee (Ind.) Fire Clay Products Co., and \$65.08 to F. Fixmiller & Son with interest at six per cent. from October 1 and November 1, 1919, respectively, as reparation on account of unreasonable rates charged.

WANT RATE REDUCTIONS PUT INTO EFFECT

A telegram requesting the interstate commerce commission to put into effect reduction in rates on brick shipped from Evansville, which reductions recently were approved by the commission, has been sent by the Evansville Chamber of Commerce after notice was received that Danville and Streator, Ill., and Terre Haute manufacturers had filed a request for suspension of the reductions. Evansville manu-

facturers claim the industry in the three cities named, have had lower rates, distance considered, than Evansville brick manufacturers.

SUSPENDS RATES ON THREE RAILROADS

Indiana brick rates on the Illinois Central, C. & E. I. and Big Four railroads have been suspended by the Indiana public service commission. Rates on the L. & N. and Southern roads which serve Evansville brick manufacturers have not been suspended. The commission found state rates on brick from cities in the Wabash valley group higher than rates set by the same railroads in Illinois. It has been learned that the interstate commerce commission has not suspended brick rates except from the Wabash valley group to Canadian points. Officials of the Indiana State Chamber of Commerce declare that they have information there will be some changes in the rating of the Wabash valley group of brick manufacturers that will permit them to compete with Danville, Ill., manufacturers. The official order has not been issued, however.

INVITES IOWA CONCERN TO COLORADO

Colorado Springs, Colo., has extended an invitation to the What Cheer (Ia.) Clay Products Co. to establish a clay plant at Colorado Springs. There are numerous deposits of clay immediately surrounding that city, and from samples which have been analyzed by the What Cheer Company, the clays are suitable for manufacture into brick and tile.

WICHITA IMPORTANT BRICK PRODUCING CENTER

Wichita, Kan., is fast becoming a brick center of considerable importance. There are more than 75,000,000 brick distributed thru that city annually it is reported, and about 10,000,000 of these are used in the city. The Reliance Brick Co. and the Lumberman's Brick Co. handle the bulk of these brick. With the opening of the Noll Brick & Tile Co., a plant recently built, Wichita becomes a formidable producer of brick.

EXHIBITS AT "BETTER HOMES" SHOW

The Southern Brick & Tile Co., Louisville, Ky., is handling an exhibit of face brick, tile and other clay products at the first Better Homes Exposition, which opened with about 200 exhibitors on October 23.

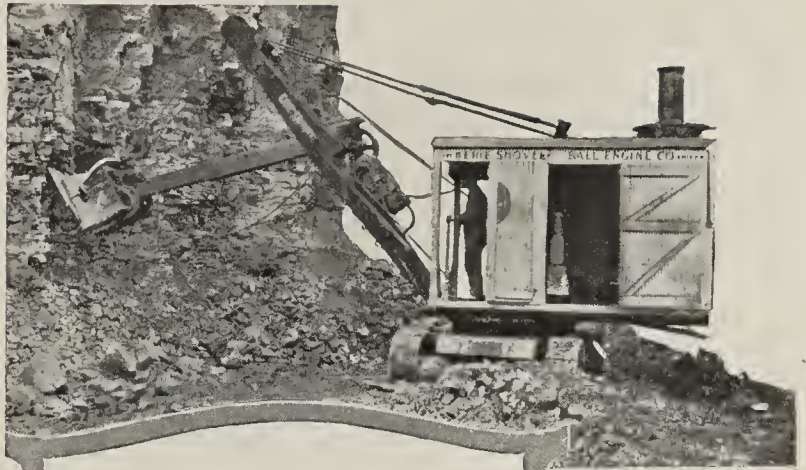
BANNON RUNNING AT CAPACITY

The P. Bannon Pipe Co., Louisville, Ky., reports full capacity operations in both its sewer pipe and hollow tile departments, while demand for fire brick is much better than it was. The company is making heavy hollow tile deliveries and has big sewer pipe contracts at Central City, Ky., Hazard, Ky., and other points.

GETS FIRE BRICK ORDER FROM ARGENTINE

The United States Navy has received such satisfaction from the use of fire brick manufactured by the Louisville (Ky.) Fire Brick Works that representatives of the Government had no hesitancy in recommending the local company to the Argentine Republic, with the result that the local firm has received a nice order for fire brick from the Argentine Navy. This shipment, according to J. H. Bell, vice president of the Louisville Fire Brick Works, will be shipped to Buenos Aires.

The United States Navy has, with the exception of one year, obtained practically all of its fire brick from the local concern for the last seven or eight years. Shipments were made to the navy yards at Charleston, Norfolk, Washington, Philadelphia, Brooklyn, Boston, Portsmouth, Mare Island and Puget Sound.



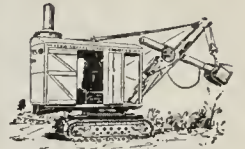
"WITH ONE MAN and one ERIE Shovel we easily get out 300 cubic yards per day. This is sufficient to take care of the daily output at each of our 3 plants, but we could easily increase this output if necessary. In our opinion, the ERIE is the shovel."
—Edw. T. Conley, Sec'y, Bradford Brick and Tile Co., Bradford, Pa. (Owners of 3 ERIES.)

For larger output than the above—500 to 600 cubic yards per day, or more—it is advisable to use two men on the shovel. But when your plant requirements are not too great an ERIE and one man will serve.

We will be glad to send you data showing just what you can do with the ERIE. Write us.

ERIE STEAM SHOVEL CO.

Formerly Ball Engine Co., Erie, Pa., U. S. A.
Builders of ERIE Steam Shovels and Locomotive Cranes



ERIE Shovels can be had with broad tired traction wheels, standard gauge car wheels, or on ERIE lubricated caterpillar type mounting. All interchangeable on the same truck frame.

ERIE

Revolving Shovels



FOERST

FUEL OIL BURNERS

- are absolutely leak proof
- will not clog
- produce greater and quicker heat
- are easy to install, easy to operate, nothing to get out of order.
- assure maximum output of ware for a minimum consumption of fuel.

Write for catalog and full information

John Foerst & Sons
Fuel Oil Burner Mfrs.
Bayonne, New Jersey

Estimates furnished on
Complete Installations



Building a New One? Remodeling the Old?

No matter which you are doing our service can be of benefit to you.

A sincere interest in your problem, together with common sense methods and a broad experience makes this service highly profitable.

Write for details



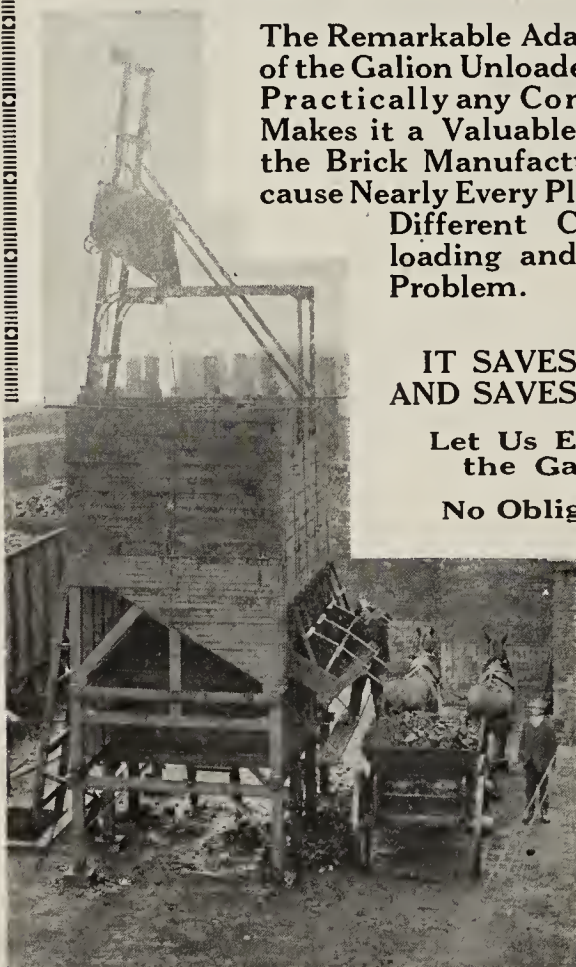
Adaptability

The Remarkable Adaptability of the Galion Unloader to meet Practically any Conditions Makes it a Valuable Asset to the Brick Manufacturer, Because Nearly Every Plant Has a Different Coal Unloading and Storing Problem.

**IT SAVES TIME
AND SAVES MONEY**

**Let Us Explain
the Galion**

No Obligation



**The
GALION**
Iron Works
& Mfg. Co.

Galion,
Ohio

GETS INJUNCTION AGAINST UNION

The Big Savage Fire Brick Co. of Cumberland, Md., has filed a bill of complaint in Circuit Court asking for an injunction against certain union men, restraining them from interfering with the operation of the plant. The brick plant has been operating open shop and it is asserted that about half the force has been induced to quit. Threats of violence against those working is cited as one of the reasons for the request for an injunction.

BOSTON COMPANY EXPANDS

With additional machinery and equipment recently installed, East Bridgewater Brick Co., Boston, Mass., is in a position to manufacture 100,000 brick daily, it is reported. The company has increased its capacity in anticipation of a building boom.

DETROIT THIRD IN BRICK PRODUCTION

Detroit claims third place in the production of brick and bids fair this year to hold its position by a comfortable margin. When figures have been compiled at the end of the year, brick production will in all probability have exceeded 500,000,000 brick. Clay deposits in and about Detroit are of vast proportions, and it is estimated that, with an annual production of 400,000,000 brick, deposits would be sufficient for a half century of production.

In 1913, Detroit brick production was but 200,000,000. In the two years following, it increased to about 300,000,000 and has since then gained steadily. There are six large companies and 12 or 15 smaller ones supplying Detroit markets.

Burning with coal has been supplanted entirely by the more modern oil burning methods.

SHIP DUTCH BRICK TO DULUTH

Holland has shipped 100,000 brick to Duluth, Minn., which will be used for construction projects there. The Netherlands Chamber of Commerce branch at Duluth said that the brick will be placed on the dock there at a cost less than that charged in the New York market. If the brick are satisfactory more will be imported.

MOVES OFFICES TO NEW LOCATION

Offices of the Christy Fire Brick Co., St. Louis, Mo., have been moved from 5 N. Main St., to the Boatman's Bank Building.

LACLEDE BUYS FIRE CLAY MINES

The Grand View fire clay mines, 5021 Fyler Avenue, St. Louis, Mo., have been purchased by the Laclede-Christy Clay Products Co. for \$150,000. The property is directly west of the Laclede-Christy plant and connects with the Frisco Railroad. John L. Green, president of the purchasing company, said that the company desired to mine clay close to its plant and for that reason took over the Grand View property which consists of 46 acres of fire clay land and a mill with a capacity of 150 tons of pottery material daily.

NEW YORK COMPANY FORMED

C. L. Sanford Brick Co., Southold, Suffolk County, N. Y., has been organized with capital of \$60,000. C. L., L. N. and F. S. Sanford are incorporators.

METROPOLITAN AUTHORIZES MORE LOANS

Chicago and vicinity will receive a very substantial portion of the \$4,500,000 in Real Estate Loans authorized on October 11 by the Metropolitan Life Insurance Co. of New York. These city loans are made in Chicago and 80 cities in this territory thru the Chicago Trust Co. and associated banks.

MOHAWK TO BUILD ANOTHER PLANT

The Mohawk Brick Co., of which Joseph Vet, a banker of Mechanicsville, N. Y., is president, has purchased 180 acres of land north of the Boston and Maine railroad bridge just across the river from Mechanicsville, and plans to erect a brick plant on this location. With their plant at Crescent they will have a combined capacity of 100,000 brick a day.

MODEL PRACTICE HOUSE OF BRICK

Actual home conditions will be nearly duplicated in a new ten-room brick practice house to be built at the North Dakota Agricultural College this fall, according to Miss Alba Bales, head of the home economics department. Plans and figures, carefully calculated by the architect, will be on file in the building for study by the girls. These plans will show how various changes in the plans of this ideal house can be made without reducing the vital factors of comfort and convenience. For example, a comparison will be made between the cost of such a building of brick and wood.

REPLACES 20 HORSEPOWER ENGINE WITH 45

At the plant of E. B. Nagel & Co., Minster, Ohio, a 45 horsepower steam engine has been installed to take the place of a 20 horsepower engine, formerly used. This company has found business very good but during the recent coal shortage was unable to get coal and burned its products with wood.

JUNCTION CITY PLANT NOT IMPROVED

Altho the last legislature made appropriations of more than \$50,000 for the purchase of additional machinery and equipment at the state brick plant at Junction City, Ohio, very little of it has been spent, and immediate plans of those in charge do not call for any further improvements to be made this year.

**FIRE INSURANCE**

In addition to effecting substantial reductions in Fire Insurance Rates, Squire Company's service includes Fire Prevention Engineering work—Adjustment of Losses—In fact, complete elimination of all worry in connection with insurance details.

Quotations upon request.

SQUIRE COMPANY
INSURANCE .. BROKERS
SQUIRE BLDG. 81 JOHN ST.
NEW YORK

CHICAGO
PHILADELPHIA

NEWARK, N. J.
LONDON, ENG

Insurance Specialists to Clay Manufacturers

**SPECIAL
Kiln
Burner
No. 8**

A ALERT BUYERS who judge economy by performance rather than first cost are responsible for the popularity of the

Smokeless Oil Burner

The burner of perfect control at all stages of the burn, that does not deposit soot or carbon on the ware, that is non-drip, non-clog and produces clean, efficient heat.

The Smokeless Oil Burner Co.
BUCYRUS, OHIO

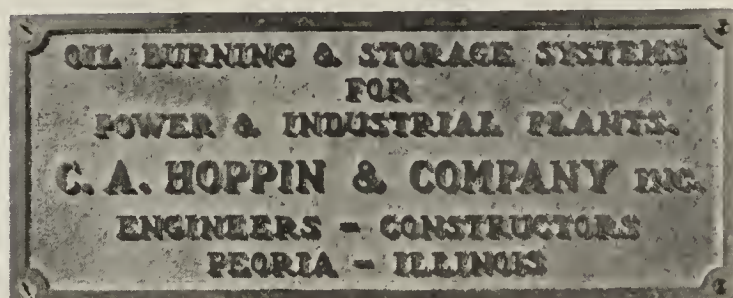
Tanks Pumps Meters Strainers

Eventually—**You Will Burn Oil**

Clay plant operators everywhere are rapidly installing oil burning systems to burn ware, and once oil is used they will never go back to coal for the reason that, besides effecting enormous savings in labor, time and fuel, they get, thru an even and thoro distribution of heat, 100% burns of quality ware.

The Burning Department is the most important one in your plant. What better Plant Betterment move could you make than to equip your kilns for oil-burning *now*.

*Let us tell you about our Engineering Service
No obligation*

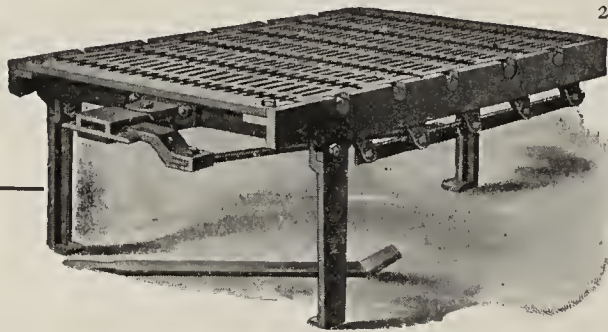


ELIMINATION OF LOSSES DUE TO KILN GRATE TROUBLES, is the result when CANTON GRATES ARE INSTALLED

Canton Grates will save you about one-fourth on your fuel bills. They will enable your operators to attain and maintain temperatures without excess use of fuel.

It wont cost you to get complete information today and it may mean profit for you. It has to many others.

Write us



The Canton Grate Co.
1709 Dillon Place, CANTON, O.

START BRICKLAYERS SCHOOL IN COLUMBUS

Starting October 9 a course in bricklaying was opened at the Trades High School of Columbus, Ohio, with quite a few pupils enrolled right from the start. The work consists of blue print work as well as practical bricklaying. Evening classes are being conducted.

HOCKING VALLEY RUNNING TWO PLANTS

The Hocking Valley Brick Co., of Columbus, Ohio, is now operating two of its four plants located at Logan and Nelsonville, Ohio. The plant of the Ohio Fire Proofing Co., near Nelsonville, is being used for the manufacture of fire-proofing while the plant of the Hocking Valley Brick Co. at Logan is busy making pavers. The other two, located at Nelsonville, are closed down because of labor difficulties.

WANT CONTROL OF COLUMBUS COMPANY

Negotiations for the purchase of the controlling interest in the stock of the Columbus (Ohio) Brick & Terra Cotta Co., which has a plant and clay deposits at Union Furnace, Ohio, are progressing satisfactorily, according to F. F. Hoffman, who represents the stockholders. W. T. Matthews, formerly sales manager of the Claycraft Brick Co., of Columbus, is the leading spirit in the plan to take over the control and put the plant in shape for operation.

CAR SHORTAGE IS SERIOUS IN OHIO

Embargoes, and the car shortage are proving great hindrances to the brick industry in the Canton, Ohio, district, according to Paul C. Belden, of the Belden Brick Co. "Inability to get cars with which to move our products is demoralizing the brick industry and has reduced deliveries during the past month to a minimum," Belden said.

He regards the present situation as extremely bad. Production at the plants of the Belden company and at other nearby factories is holding up fairly well.

PRICES ON FACE BRICK STILL RISING

Face brick in Columbus and central Ohio territory are still on the advance because of higher labor costs as well as heavier overhead. Plants which have signed up with their men at the advance scale have been compelled to increase the price of their product about \$2 to \$3 per thousand and in some instances even more. Face brick delivered in Columbus are selling from \$26 to \$40 f. o. b. cars. Common brick are also slightly higher with prices delivered on the job ranging from \$15 to \$17.50 and in a few instances even higher.

OHIO'S 1923 PAVING PROGRAM CHANGED

Plans for next year's construction have been somewhat upset, according to Director L. C. Herrick, of the Ohio Highway Department, by notification from Washington that the \$2,200,000 of federal aid money allotted Ohio cannot be used until July 1. This will make it impossible to award contracts for federal aid roads until the middle of next summer. Herrick had planned to award all contracts for 1923 work early in the year to insure completion of it during the season.

Tentative plans for 1923 had called for construction of 1,000 miles of improved roads, but it may be necessary now to lessen this total.

Of the 84,000 miles of public roads in the state, approximately 11,000 miles are now improved paved roads under the state and county supervision, according to the State Department.

COLUMBUS STAGES "HOME BEAUTIFUL DEMONSTRATION"

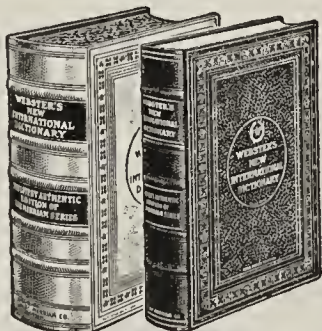
Approximately 150,000 people visited the "Home Beautiful Demonstration" held in Columbus, Ohio, Oct. 8 to 22, under

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Hundreds of thousands of our successful men and women—business men, farmers, mechanics, parents, teachers, writers, clergymen, lawyers, advertising men, librarians, all are being served by

Webster's New International Dictionary The Merriam-Webster

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Stamped from a single sheet of steel. Rounded corners and bottom. Sharp "bite." High speed delivery.

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For mud, ore, coal, broken stone, etc. Elevates at low angles and without a boot.

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ELEVATOR BUCKETS

ANY ORDER for Salem Buckets is promptly filled from a large stock. Special sizes are made up in record-breaking time. Such service is one reason why Salem Buckets have been leaders in their field for half a century. Send for price list.

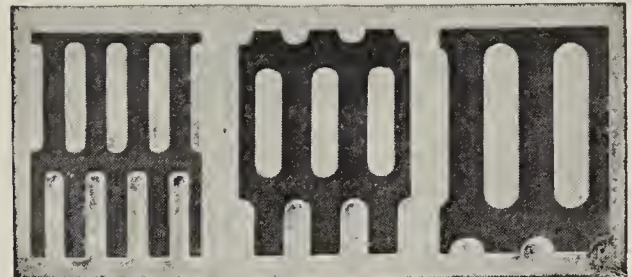
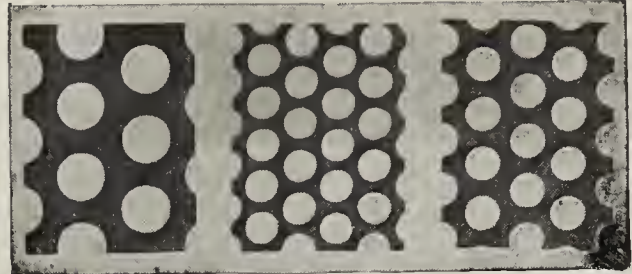
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Sheets furnished flat or rolled to shape for revolving screens.

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Rugged Construction

The One Man Excavator has that RUGGED CONSTRUCTION which makes possible continuous hard usage under all conditions. Take for instance the digging of hard shale at the Coen Brick & Tile Works, Homestead, Pa.

The One Man Excavator will help you reduce costs this year. Ask about it.

Furnished with traction wheel or caterpillar tread, gasoline or electric power.

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BAY CITY, MICHIGAN



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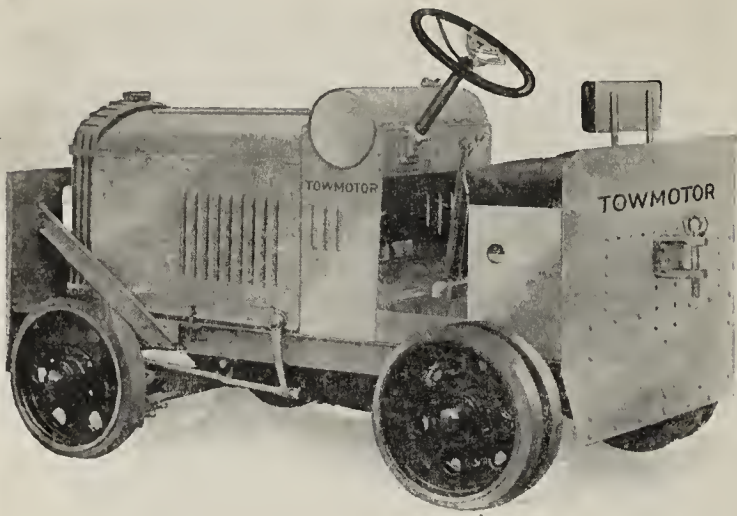
Test Special Rubber Belting
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Elevator Belting

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NEW YORK BELTING & PACKING CO.

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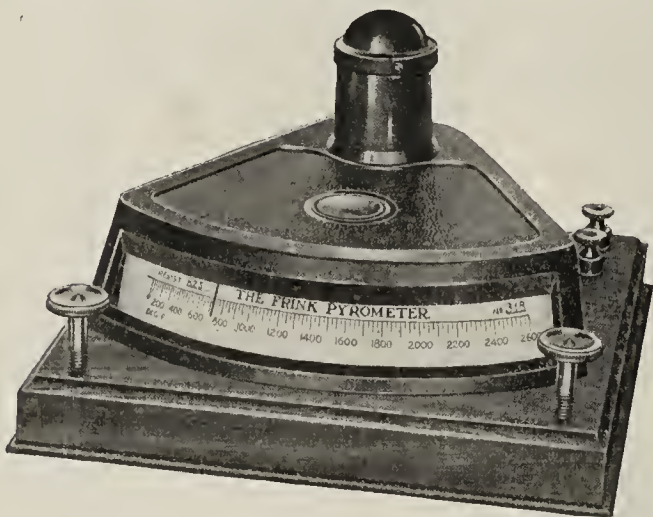
Not the lowest purchase price, but the lowest ultimate cost constitutes real cost and true economy.

That the TOWMOTOR gives the most for the lowest ultimate cost has been thoroughly demonstrated and proven by TOWMOTOR users, whose names we will be glad to supply along with descriptive bulletins and prices, upon request.

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Control Your Heat!



Frink Pyrometers afford perfect control of all temperatures. They save time and labor in burning and enable your burners to hold even heats, thus improving the quality.

**YOU CAN DO BETTER WITH
A FRINK PYROMETER**

WRITE FOR DETAILS

—THE FRINK PYROMETER COMPANY—
LANCASTER, OHIO

the auspices of the Columbus Dispatch and the co-operation of the Retail Furniture Dealers' Association, the Electrical League, Real Estate Board, Builders' and Traders' Exchange and other business and civic organizations. The demonstration was along the lines of the nation-wide "Better Homes in America" week which has the endorsement of President Harding, Vice-President Coolidge and cabinet officers.

To stage the demonstration, the people in charge selected six model homes in various parts of the city. These homes represented a cost ranging from \$8,000 to \$65,000 and were of different types of construction. In every house used as a model, a "governor" was in charge with sufficient attendants



Another of the Homes Picked as Prize Winners in the Columbus (Ohio) Better Homes Demonstration Week. It Cost \$18,500 and Is Located in One of the Suburbs.

to show the crowds around. All houses were completely furnished with curtains and draperies as well as electrical equipment and musical instruments.

One of the houses was located at 2355 Bryden Road, Bexley, a suburb of Columbus. As shown in the accompanying cut this dwelling is of brick construction with side hall entrance. It contains a breakfast room, sleeping porch and tiled bath. The room arrangement is such as to afford great

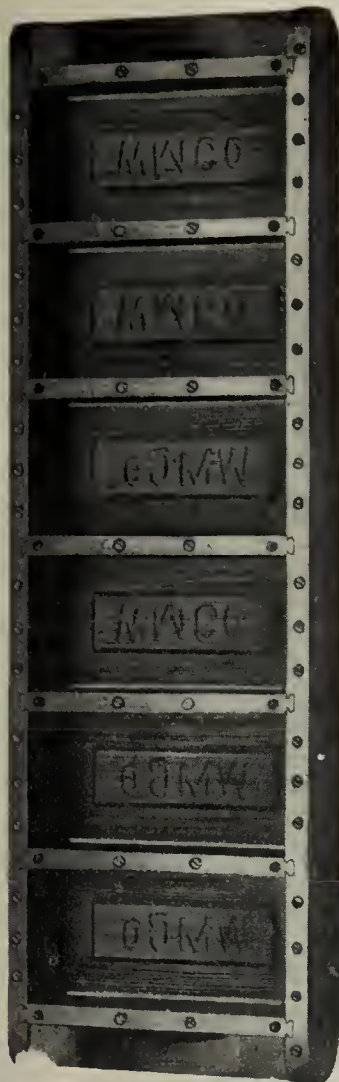


This Is the \$65,000 Home Selected as One of the Prize Exhibits for the Columbus (Ohio) Better Homes Demonstration Week Put on Recently.

opportunities for the placing of furniture, as the rooms are mostly of the square type. This house costs in the neighborhood of \$18,500.

Another of the houses used for the display was a stone structure on Roxberry Road and Cambridge Blvd., Upper Arlington, another Columbus suburb. As shown, this house is of the massive type and costs in the neighborhood of \$65,000. It is constructed of limestone of the extreme English design. It contains 11 rooms and three baths as well as the necessary closets and storage spaces. It contains more than 300 electrical outlets making it modern in that way.

The other four houses shown were mostly of brick construction, altho one was of frame and another half frame and half brick construction.



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WELLINGTON molds are exactly what you need. They fill the bill at a great saving in cost and upkeep.

Wellington molds are furnished in any type or size, with panels, letters, etc. There is no better mold on the market.

Let us quote you our prices

The
Wellington Machine
Co.

WELLINGTON, OHIO

MINSTER LOCOMOTIVES



The Garner Brick Works, located at Haverstraw, New York, with this MINSTER Six Ton are hauling their clay about a mile and are turning out 135,000 brick per 8-hour day.

Consider this efficiency and the adaptability and the economical advantages of the MINSTER over your present method, and write for catalog and information.

THE INDUSTRIAL EQUIPMENT COMPANY

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Eastern and Export Department

THE HERBERT CRAPSTER CO., Inc.

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In The Dark

Color alone gives little indication as to what is happening in a kiln. Trials, settle and cones provide an index only in the later stages of production—and no burner can afford to grope in the dark until production is too far advanced to modify conditions. To know what is happening during the early stages of burning is vitally important. Such information is made instantly available by the use of Thwing Pyrometers. That these instruments justify their cost by the overhead they save we will gladly demonstrate upon request.

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Thwing

PYROMETERS

**ROTA-VIBRA
SCREEN**

Page 237

Clay Working Equipment

If you need kiln bands, dryer cars, screens, or other clay working equipment, be sure to get our catalog and prices.

Robinson's Equipment is used by many clay plants throughout the country.

FRANK H. ROBINSON

Dryer Cars and Clay Working Equipment
Factory and General Office **PITTSBURGH, PA.**

KILN BANDS



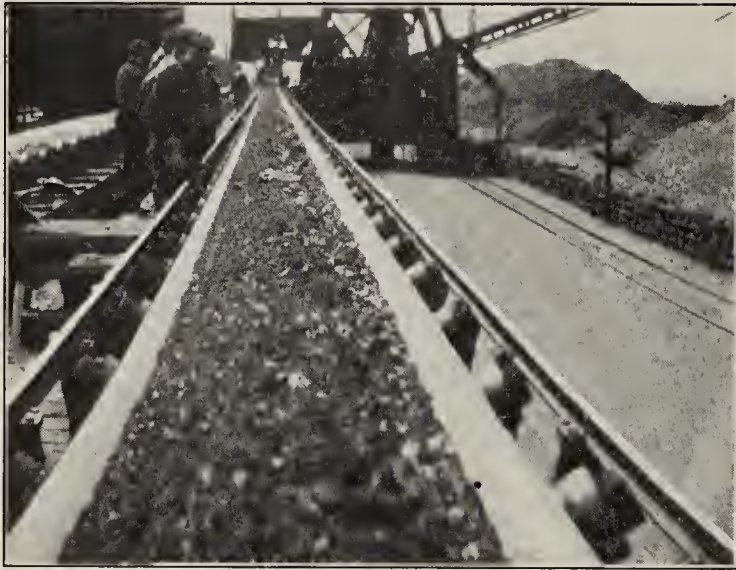
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During the past thirty-seven years we have assisted many concerns with their conveying problems. A saving in conveying costs was the invariable result when our recommendations were followed.

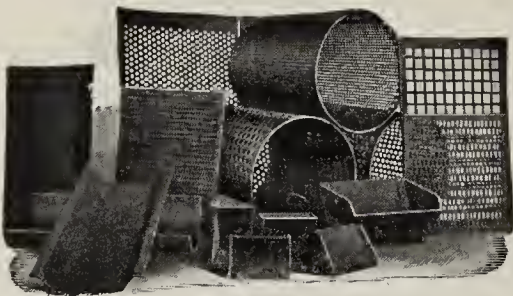
Our belt experts may be of assistance to you. May we figure on your next conveyor?

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Mfrs. Mechanical Rubber Goods—Auto Tires and Tubes
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**ELEVATOR BUCKETS
CONVEYOR TROUGH and FLIGHTS
STACKS, TANKS,
GENERAL SHEET and
LIGHT STRUCTURAL WORK
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OHIO DRAIN TILE PRICES TO RISE

Advances in the price of drain tile by Ohio manufacturers are expected soon as a result of higher wage scales being paid by brick and clay products plants generally. Many of the drain tile plants are located where the higher scales are being paid and as a result will be compelled to pay them soon. The demand for drain tile in the Buckeye State is good, altho the rush of orders is not expected before some time in November. Factories making drain tile are working with full forces and indications point to an active demand. Shipping facilities are now easier as a result of the lifting of embargoes.

DEVELOPING DENISON INTERESTS

P. G. West, formerly assistant sales manager of the Lakewood (Ohio) Engineering Co., has been appointed sales manager of the Denison Interlocking Tile Corporation, Cleveland.

This is one of the several changes planned by president Bert J. Graham for the development of the Denison Interlocking Tile interests. The Chicago office of the company has been reopened, and there is the possibility of establishing several other branch offices in the Middle West at an early date.

The Los Angeles (Cal.) Pressed Brick Co. is now making interlocking tile for the Denison Interlocking Tile Corporation and will have the territory in Southern California. George H. Rogers, formerly general manager of the Los Angeles Denison Block Co., is sales manager for the tile in the district.

INSTALLING ELECTRIC POWER

Another plant to be converted to the use of electricity, as a motive power for operating its plant, is the Pawhuska (Okla.) Brick Co. The company is adding a 150 horse power motor and has installed a 23,000 volt electric line.

BUILD HOUSE TO ADVERTISE PRODUCTS

A unique advertising project has been staged by the Standard Brick & Tile Co. at Portland, Ore. This is the construction of a model residence at 1181 East Davis Street, Laurelhurst. The residence is to be a characteristic English cottage type of Ideal wall construction. The cottage will demonstrate and suggest the uses of burned clay products in house construction. When completed, after being placed on exhibition for a while, it will be placed on the market and sold. The house is being built on a site owned by A. H. Wethey, Jr., president of the company. It has been designed by Otis J. Finch, sales manager of the company, in collaboration with O. M. Akers. The house is arranged for a maximum utilization of space. Clay products are used inside and out wherever possible.

FIRE DAMAGES PAXTON WORKS

The plant of the Paxton Brick Works, Paxtonville, Pa., was partially destroyed by fire on September 11, with loss including a number of kilns and out-buildings in the yard. The main portion of the works was saved. It is planned to rebuild the damaged portion at an early date.

PLANNING \$25,000 ADDITION

W. J. Savage & Co., brick and burned clay products manufacturers of Knoxville, Tenn., plan construction of large addition to plant at 912 West Clinch Avenue; investment between \$20,000 and \$25,000.

✻ ✻ ✻

The American Fire Brick Co. at Spokane, Wash., is building a tile warehouse costing \$5,000.

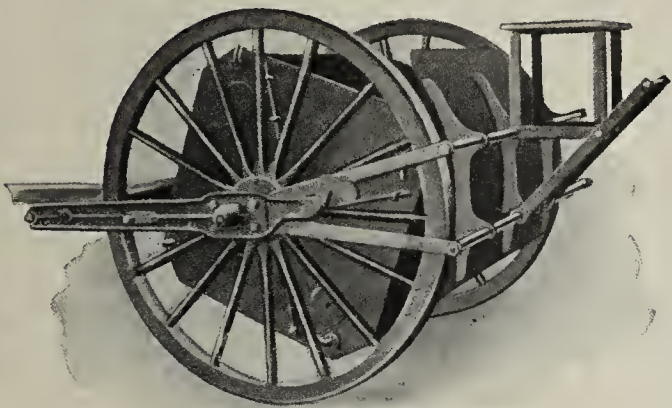
To Gather Surface Clay and Shale—

there is no cheaper or more efficient way than by using The Fernholtz Improved Clay and Shale Gatherer.

Actual tests and testimonials from brick, tile and pottery plants in nearly every state in the Union verify our claim that with the use of this improved gatherer about ONE-HALF OF THE COST OF CLAY AND SHALE GATHERING CAN BE SAVED.

Write for full information regarding this machine

Fernholtz Brick Machinery Company
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Records Speak Volumes

The unusual qualities of Caldwell Cypress Tanks are proven by their enviable records in all sections of the country. Perhaps this is largely due to the fact that, of all woods, cypress is the one which lasts best outside its native climate.

Thirty years experience in building tanks enables us to couple this remarkable tank wood with workmanship and design that ensure the maximum of tank satisfaction.

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Incorporated
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Caldwell
TANKS
AND
TOWERS

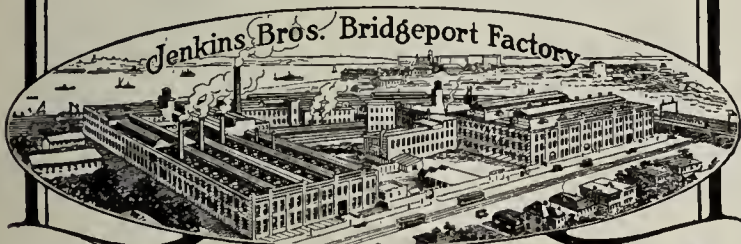


The Jenkins Diamond is the mark by which Jenkins Bros. assure you of that care-free service for which Jenkins Valves are so well known. You should not expect Jenkins service from any but genuine Jenkins Valves.

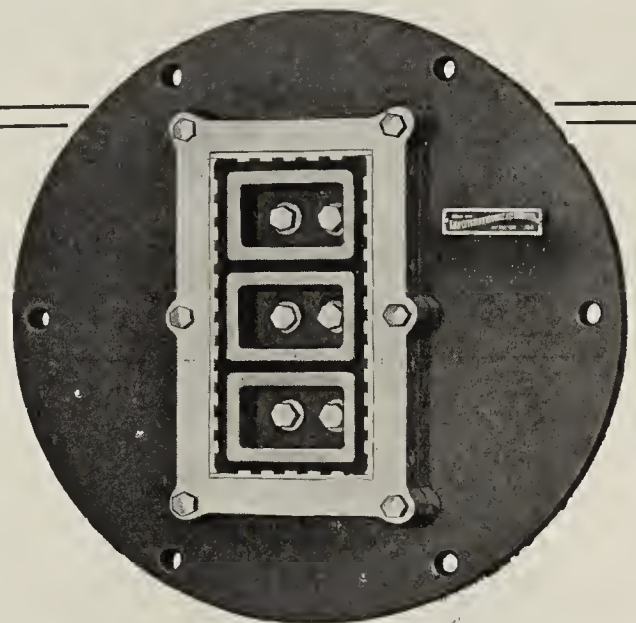
Supply houses everywhere

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HOLLOW WARE DIE

The die shown here is for standard Partition or Wall Tile, Liner style for dove-tail scoring of tile, wearing parts renewable, thereby, maintaining tile to size and weight.

We also manufacture dies for Brick, Fire-proofing, etc., and for many special purposes.

Ask for information concerning our equipment.

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**Especially Prepared
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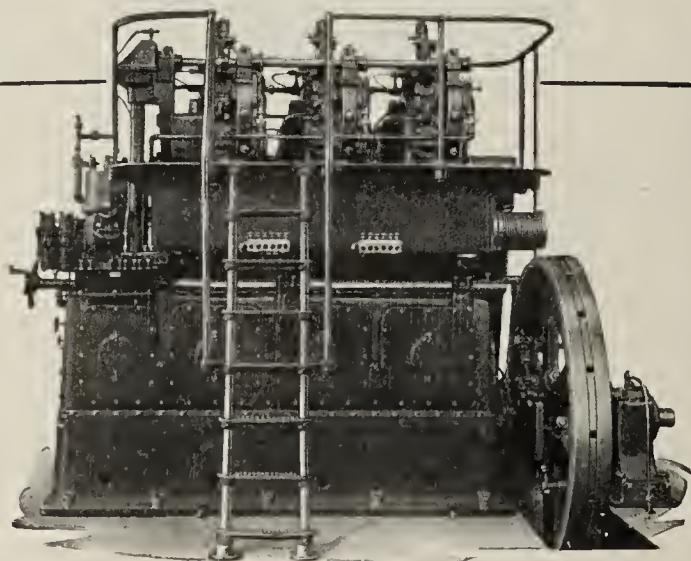
Economical Power—Efficient Operation—Convenient—Conservative—Complete—Easy to care for—Always ready and reliable.

This engine operates on cheap fuel oil. Fuel storage space decreased. A small amount of fuel makes a big amount of power.

Send for new catalog, either vertical or horizontal types furnished.

**THE HADFIELD-PENFIELD STEEL COMPANY
Bucyrus Ohio**

Formerly the American Clay Machy. Co.



TO REBUILD PLANT DESTROYED BY FIRE

The American Fire Brick Co., Mica, near Spokane, Wash., is planning for the rebuilding of the portion of its plant recently destroyed by fire with loss estimated at about \$35,000, including equipment.

WASHINGTON PLANT HAS NEW OWNERS

A. D. Merrill and W. G. Telfer have purchased the Superior Brick & Tile Co. Plant at Woodinville, Wash. This plant has been overhauled and production of brick and tile has begun. Mr. Telfer is in charge of the manufacturing end and Mr. Merrill looks after sales and distribution. The Woodinville plant is located about 14 miles from the center of the city of Seattle and the city will furnish an easy outlet for the capacity of the plant in both brick and hollow tile. The surrounding farming community will absorb the output of drain tile. The new name of the company will be Superior Clay Products Co.

FREIGHT RATES EFFECTIVE IN WISCONSIN

Lower rates on brick shipped by freight to points within Wisconsin were ordered by the State Railroad Commission to take effect immediately. The new schedule of intrastate freight charges applies also to clay and concrete products taking brick rates.

Rates ordered, reducing shipping costs on brick to slightly above the level in force before an increase was granted in 1918, follow:

Distance	Rates in Cents Per 100 Lbs.
10 miles or under	3.4 cents
30 miles	3.6 cents
50 miles	5.0 cents
70 miles	5.8 cents
90 miles	6.4 cents
120 miles	7.2 cents
140 miles	7.7 cents
160 miles	8.2 cents
180 miles	8.7 cents
200 miles	9.2 cents
240 miles	10.2 cents
280 miles	11.2 cents
300 miles	11.7 cents
350 miles	12.9 cents
400 miles	14.0 cents

NATIONAL OPERATES 75 PER CENT.

The National Brick Co. of Laprairie, Que., is being operated at 75 per cent. of capacity as compared with 25 per cent. last year. The market of the company includes Eastern Ontario, Quebec, and Northern New England. They note a great improvement in Eastern Ontario.

TORONTO EXPERIENCES GOOD DEMAND

F. B. McFarren, manager of the Interprovincial Brick Co., Toronto, with plant at Cheltenham, states that the demand for brick is extremely good, being in excess of the company's capacity to produce. Last year the company produced at capacity until July 1 and the latter part of the year at half capacity. This year it is expected to run to capacity thruout the whole year.

NEWS FROM CANADIAN FRIENDS

The new sand-lime plant of the Don Valley Brick Works, Toronto, is now in operation.

Joseph Keele discovered Bentonite at Camrose, Alta., some time ago. It is of special use as a softener in ceramics.

L. E. Shaw, Avonport, N. S., and Merkley Bros., Ottawa, have arranged to manufacture interlocking tile.

The Atlas Brick Co. with plant at Milton, Ont., and operated by the Interprovincial Brick Co. is offering \$60,000

The Gates Automatic Stoker Should Be On All Your Kilns!

++++

The June 13th Issue of
Brick and Clay Record
Tells Why

Let us send you a reprint

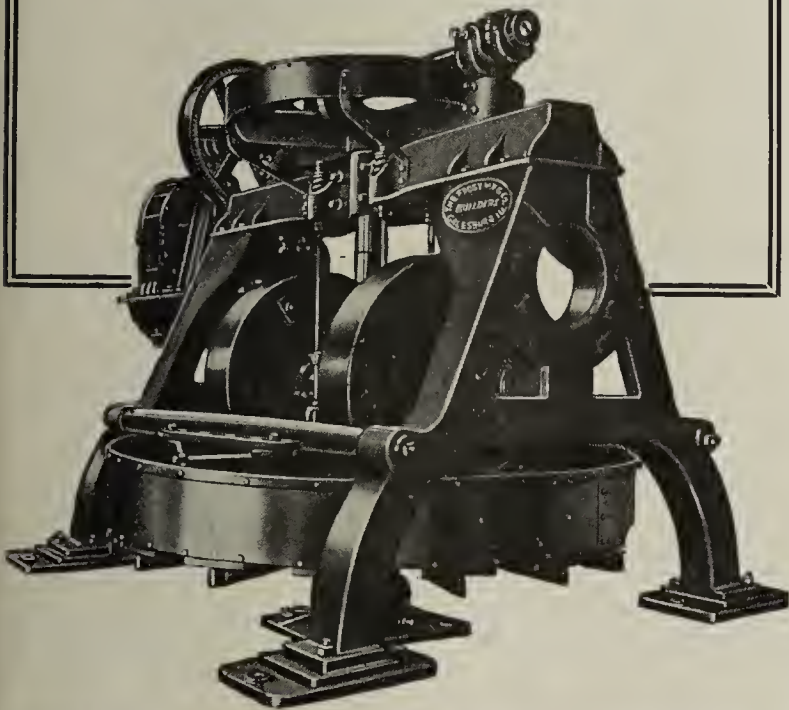
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138 N. LA SALLE STREET
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BETTER QUALITY WARE

That is the result when Frost
Dry Pans are put on the job.

THE FROST MFG. CO.
GALESBURG, ILLINOIS



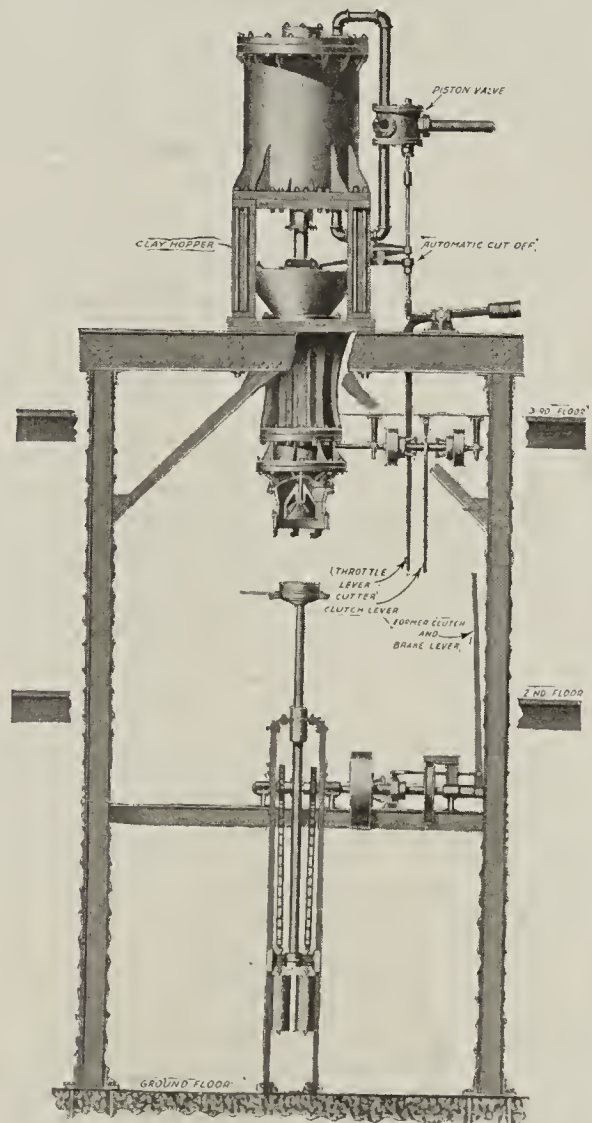
QUALITY ECONOMY SERVICE

The Modern Way To Make Sewer Pipe Is With—

The TORONTO SEWER PIPE PRESS

Write for complete information

PAGES  244-245



Toronto Sewer Pipe Press

The Toronto Foundry & Machine Co.
Toronto, Ohio



The Brickmaker's Friend

It would be a difficult matter to find a more fitting name to apply to Standard Ball-bearing Roller Brick Conveyors.

These sectional, untiring, ever ready conveyors have been tried and never found wanting in times of need.

Unlike the usual portable power driven mechanical contrivances, they never endeavor to shirk a day's or even a portion of a day's work by pleading, "out of order."

Operated by a perpetual power, GRAVITY, the sensitive ball-bearing rollers respond instantly and freely to the pressure of the load, and riding friction free, brick and all clay products are transported from car to pile or vice versa.

Our representative in your territory will gladly call and show you how effectively a few sections of these time- and labor-saving conveyors will operate in your yard.

Write Today

STANDARD

CONVEYOR COMPANY.

NORTH ST. PAUL, MINN.

New York
227 Fulton St.
Milwaukee
601 Security Bldg.

Chicago
549 W. Washington St.
Cleveland, O.
1108 Hippodrome Bldg.

Representatives in all principal cities

of stock for sale, the proceeds to be used to double the capacity of the plant.

* * *

THE BUILDING SITUATION

(Continued from page 629)

Of this amount two-story brick dwellings will represent a substantial sum.

The Wilkes-Barre district is in the midst of a building boom, and never before have so many houses been in course of erection at one time. It is estimated that more than 600 homes have been constructed up to the present month of the year, while at Kingston, in the same vicinity, 250 houses have been built.

Pittsburgh operations are continuing along the lines of dwellings and garages, with factory construction assuming considerably more prominence. The local building department reports that plans have been filed in this city up to October 15, with aggregate valuation of \$30,000,000.

Baltimore

The pronounced activity in industrial work in the Baltimore district is assisting materially to maintain high construction figures at a time when many dwellings and apartments are being completed for fall occupancy. Current construction is averaging from \$6,000,000 to \$8,000,000 a week, with every aspect of continuance until real winter weather. The labor situation is quite satisfactory excepting in connection with carpenters, who are asking an advance of from 80 to 90 cents an hour.

Hollow tile is operating in particularly keen demand in Baltimore, a large part of the distribution being used for garages. A recent advance has placed the price of 4x12x12-inch stock at \$140, wholesale, while 8x12x12-inch material is selling at \$250.

Chicago

While somewhat affected by the seasonal slump, building permits are being taken out in Chicago at a rate which indicates the new construction for October will total about \$13,000,000, the citizens' committee to enforce the Landis award announced October 25. The total value of permits from September 30 to October 20, according to reports to the committee, was \$10,939,350. 22 of these permits were for large apartments, valued at \$1,408,300.

Construction of small houses and apartments is showing up surprisingly well, the committee says. Permits for 294 single family dwellings, valued at \$1,909,500—the highest total of any of the three classes of dwelling construction—were taken out. Small apartments, mostly of the two flat type, totaled 139 permits with an indicated value of \$1,753,350.

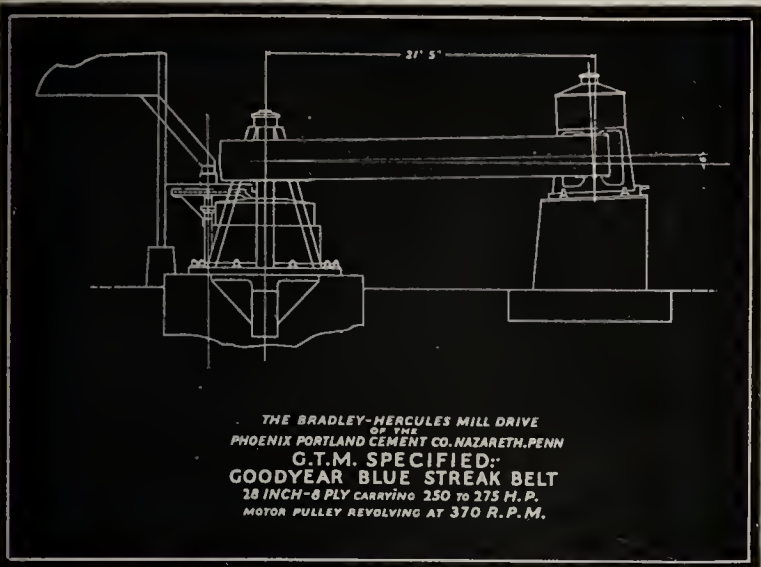
* * *

CHANGES IN TOTAL COST OF LIVING IN SPECIFIED CITIES FROM JUNE, 1920, AND FROM MARCH, 1922, TO JUNE, 1922*

City	Per cent of decrease June, 1920, to June, 1922	Per cent of increase (+) or decrease (-) March, 1922, to June, 1922	City	Per cent of decrease June, 1920, to June, 1922	Per cent of increase (+) or decrease (-) March, 1922, to June, 1922
Atlanta, Ga.....	22.5	-0.1	New Orleans, La. . .	16.2	-0.8
Baltimore, Md. . . .	21.8	- .2	New York, N. Y. . . .	22.1	+ .5
Birmingham, Ala. . .	22.0	- .3	Norfolk, Va.	23.7	-1.1
Boston, Mass.	24.3	-1.0	Philadelphia, Pa. . .	21.2	(1) + .3
Buffalo, N. Y.	23.9	- .8	Pittsburgh, Pa. . . .	21.0	+ .9
Chicago, Ill.	23.1	- .1	Portland, Me.	23.1	- .1
Cincinnati, Ohio. . .	23.4	+ .8	Portland, Ore.	24.1	+ .3
Cleveland, Ohio. . . .	23.2	- .2	Richmond, Va.	21.3	+ .3
Denver, Colo.	21.0	- .3	St. Louis, Mo.	22.8	+ .3
Detroit, Mich.	25.7	+ .4	San Francisco and Oakland, Calif. . . .	20.0	- .4
Houston, Tex.	21.8	- .8	Savannah, Ga.	25.1	- .1
Indianapolis, Ind. . . .	22.5	+1.0	Seranton, Pa.	20.2	+ .4
Jacksonville, Fla. . .	23.5	-1.4	Seattle, Wash.	20.7	- .2
Kansas City, Mo. . . .	23.8	- .3	Washington, D. C. . .	21.7	+ .5
Los Angeles, Calif. . .	14.5	+ .1			
Memphis, Tenn.	19.3	- .8	United States.	23.0	- .2
Minneapolis, Minn. . .	18.2	+ .3			
Mobile, Ala.	25.0	- .3			

1No change.

*Figures from Bureau of Labor Statistics, U. S. Department of Labor.



Blueprint sketch of Goodyear-belted Bradley-Hercules Mill Drive of the Phoenix Portland Cement Company, Nazareth, Pennsylvania

The Bradley-Hercules Drive—and the G.T.M.

It was the first plant analysis made by the G.T.M.—Goodyear Technical Man—that fully convinced Mr. E. P. Haubert, Secretary and Purchasing Agent of the Phoenix Portland Cement Company, of Nazareth, Pennsylvania, that the economical way to buy belting is to buy the particular belt for the particular drive.

“To be candid,” he writes, “I was somewhat skeptical at the outset. However, we gave the G.T.M. full sway, co-operating with him by furnishing all data on operating problems peculiar to our plant, and the survey he made gave us exactly the records we wanted. We consider the Goodyear Company furnished us an extremely valuable service.”

Carrying out the G.T.M.’s recommendation, the Company installed a 28-inch, 8-ply Goodyear Blue Streak Belt on a Bradley-Hercules Mill Drive, August 25, 1921. That is a vertical drive, transmitting power for crushing rock of size from 1½ inches down into finer form for the pulverizing tube mill. It exerts a severe strain on any belt, for the belt must be kept under high tension, very tight, with the motor pulley revolving at 370 R. P. M.

“The best service we ever received on this particular drive from any belt whatsoever,” is Mr. Haubert’s summary of this Goodyear Blue Streak Belt’s performance. “It stood by the job for nine months, during which we put through 192,172 tons of raw material, enough to make 604,000 barrels of cement. The best previous belt record on that drive was 70,637 barrels less.

“The Goodyear Belt was by no means worn out when we took it off. We took it off only because we felt that it might possibly break at some time when the time lost by reason of changing belts would seriously affect our production. If we had had another Goodyear Belt as a spare, we would have left it on, and I feel sure would have got quite a bit of additional service from it.

“We have a number of Goodyear Belts, both conveyor and transmission, G.T.M.-specified, in addition to this Goodyear Blue Streak Belt, and they are giving correspondingly good service.”

What the G.T.M. can do for one plant, in one industry, he may be able to do for your plant. He has an expert knowledge of Mechanical Rubber Goods. He has a practical knowledge of many industrial problems. You can rely on any Goodyear Mechanical Goods he recommends—belts, hose, valves and packing—to do their work more efficiently, more economically, over a longer time. For further information about Goodyear Mechanical Rubber Goods and the Goodyear Analysis Plan, write to Akron, Ohio, or Los Angeles, California.



DELIVERY END OF HURRICANE AUTOMATIC STOVE ROOM

“Hurricane” Automatic Stove Rooms represent efficiency in drying methods.

These machines produce finished ware of best quality. The ware is carried through the machine on trays fastened to an endless conveyor chain which travels between coils of steam pipe. The drying is accomplished by the recirculation of large volumes of heated air.

Shall we send you our new folder on modern Ceramic Drying Methods, or have an engineer to call and go over your particular problem with you?



235

**The Philadelphia
Drying Machinery Company**

3351 Stokley St.

Philadelphia, Pa.

Western Office: 1814 Continental Bank Building, Chicago

GOODYEAR

Copyright 1922, by The Goodyear Tire & Rubber Co., Inc.

GEORGIA

Will Surpass

PENNSYLVANIA

And

MISSOURI

In

REFRACTORY WARE

Georgia refractory clays cover an area 225 miles long and from 20 to 50 miles in width. Many of the deposits can be worked with little or no industrial haulage.

The thickness of the deposits reaches as much as 40 feet with an overburden of 1 to 20 feet.

They have a high content of alumina and a low content of free silica, alkalies and iron.

The Central of Georgia Railway made a co-operative agreement with the United States Bureau of Mines in 1921 for the laboratory and plant tests of these clays. The work is nearing completion and results will be published shortly.

It has been determined that certain of these clays will—

stand a higher temperature than true fire clays, pass better spalling and load tests, and are nearly neutral in basicity.

Pamphlets giving an outline of the resources and the preliminary tests mailed on application.

J. M. MALLORY
General Industrial Agent

CENTRAL OF GEORGIA RAILWAY COMPANY
SAVANNAH, GEORGIA

Among Our Advertisers

Details Concerning New Models, Changes in Personnel, News Matters, etc., That Our Advertisers Believe Will Interest Our Readers

HOW MUCH DOES IT COST TO RUN A STEAM SHOVEL?

The ERIE Steam Shovel Co. expects to render a real service to all owners of excavating equipment by getting together many actual maintenance cost records and publishing them in detail. To secure these actual records they have just announced a prize contest, prizes to be awarded for the best upkeep records. There are twenty prizes, ranging from one hundred dollars and a Waltham watch for first prize, fifty dollars and a Waltham watch for second prize, down to five dollars for twentieth prize. In addition, five dollars will be given for every record that does not win a prize but is published.

Contractors have from time to time accused equipment manufacturers of too much optimism in giving out figures on maintenance costs. The ERIE Steam Shovel Co. have always tried to use a great deal of restraint in publishing upkeep records, to avoid leading steam shovel owners generally to expect too much accomplishment with only an average field organization—and now they propose to remove all doubt about actual upkeep costs.

The judges of the contest will be Arthur S. Bent of Bent Bros., the well-known contracting firm of Los Angeles, Calif., Halbert P. Gillette, editor of "Engineering & Contracting" magazine and author of the "Handbook on Excavation Costs" and many other works on costs; and A. C. Vicary, vice-president of the ERIE Steam Shovel Co., mechanical engineer with many years of specialized experience on steam shovel work.

The prize contest is now open and will continue until December 31. Records may be sent in by steam shovel owners, managers, or any employee in direct contact with steam shovel work. In every case, however, the record must be accompanied by a written statement from the owner of the machine to the effect that the figures submitted are correct to the best of his knowledge. The record should include approximate number of days the machine was worked, yardage moved, and class of materials, and all upkeep costs, exclusive of cable, dipper teeth and grate bars. Complete information concerning this contest can be secured from the ERIE Steam Shovel Co., Erie, Pa.

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OIL BURNER COMPANY ENLARGES PLANT

The use of crude oil as a fuel is becoming so widely known and in such general use that the Schurs Oil Burner Co., Los Angeles, has found it necessary to install their own foundry, in order to keep production up to demand. The sales have increased to such an extent that the plant is now operating 16 hours per day. In addition to the foundry unit new automatic machinery has also been purchased and will be in operation within the next two weeks.

Mr. B. C. Berg, president of the company, reports that the general outlook over the country for the oil burner business is very good, and that they have orders on hand now to keep them busy well into the season.

Mr. John Schurs, the inventor of the burner and consulting engineer of the company, is in charge of their service department and is kept busy offering suggestions and planning layouts and installations covering the inquiries which are coming into the office constantly.

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NEW FEATURES ON THE MARION MODEL 21

The Marion Steam Shovel Co., Marion, O., has recently announced a number of new features on its Model 21, three-quarter yard revolving shovel. The basic design has not been altered, for the standard shovel construction has been so thoroly and firmly established that no radical changes of design were deemed necessary.

One of the most important features incorporated in this shovel is a distinctly new and novel type of rigid crawler trucks. With its new design the Marion Company has provided a power steering arrangement that is entirely controlled by the operator without any outside assistance whatever. A



1,500,000 Tons

of sand and gravel carried by a
GREEN DUCK Conveyor Belt

Read what this user says:

"We have never had as good a conveyor belt at our Cleves plant as the 'GREEN DUCK' that is in service there now.

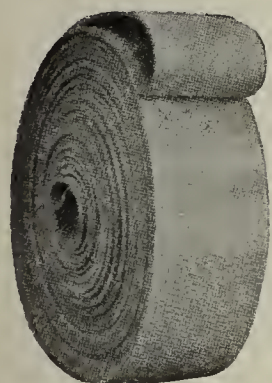
"It has gone thru two seasons, carried more than eight hundred thousand tons of sand and gravel, and has every indication of lasting thru the present season, when it will have handled considerably more than one million tons of material."

—The Ohio Gravel Ballast Company.

(This Belt was continued in service by the Ohio Gravel Ballast Co., until it had carried more than 1,500,000 tons of material.)

GET ACQUAINTED

WITH



Green Duck BELTING

now by sending for
a sample.

Made as heavy as 10-ply, as wide as 60 inches, and as long as 1,000 feet. Only the best grade of Duck is used.

LET US QUOTE YOU NOW

The Allied Belting Co.

GREENVILLE, OHIO

A New, Better Dryer for Dipped Dinner Ware



"Proctor" Automatic Mangle

Improved "High" Type

This latest type of "Proctor" Mangle offers vast improvement in drying dipped general ware.

Its users indorse it as a wonderful means of eliminating "cut" ware and increasing "R. K." ware.

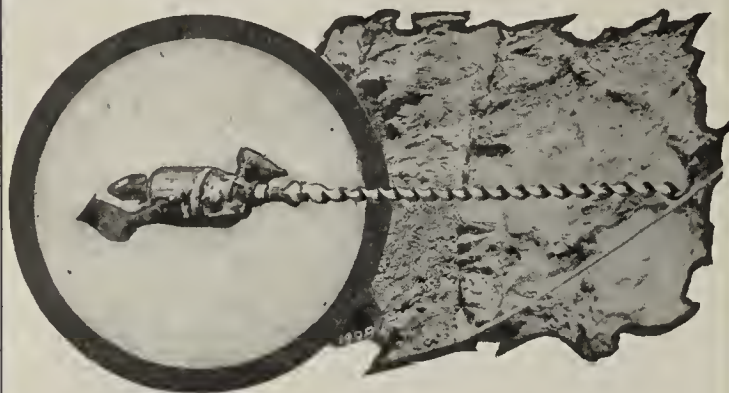
This machine requires the least possible operating space—only the space ordinarily given to the dipper's tubs and table. It has all-metal carriers—easy to clean; best for quality ware. It provides perfect comfort and convenience for the operators, greatly increasing their efficiency. Its savings in time, labor-motion, steam and space, together with its reduction of loss of ware, make the "Proctor" Mangle decidedly profitable.



*Write and let us explain
its advantages more fully.*

PROCTOR & SCHWARTZ, INC.
PHILADELPHIA, PA.

"Proctor" DRYERS



An Illinois Brick Manufacturer said—

NO brick plant is complete without a Little Giant Electric Coal Drill for drilling shot holes and repair work."

The Little Giant Electric Coal Drill illustrated drilled fourteen four-foot shot holes through plastic, semi-plastic and flint clay while a hand auger drilled one such hole.

Coal, clay and shale mines have repeatedly demonstrated the speed, economy and dependability of Little Giants. Speed up *your* shot-hole drilling and repair work with Little Giants.

Available for operation on D. C., or single, two or three-phase A. C. Address nearest Branch for trial drill.

Chicago Pneumatic Tool Company
Chicago Pneumatic Building, 6 East 44th St., New York
Sales and Service Branches all over the World

* BIRMINGHAM	* DETROIT	* LOS ANGELES	* PHILADELPHIA	* SEATTLE
* BOSTON	* EL PASO	* MILWAUKEE	* PITTSBURGH	* ST. LOUIS
* CHICAGO	* ERIE	* MINNEAPOLIS	* RICHMOND	
* CINCINNATI	* FRANKLIN	* NEW ORLEANS	* SALT LAKE CITY	
* CLEVELAND	* HOUSTON	* NEW YORK	* SAN FRANCISCO	

R-24

BOYER PNEUMATIC HAMMERS • LITTLE GIANT PNEUMATIC AND ELECTRIC TOOLS
CHICAGO PNEUMATIC AIR COMPRESSORS • VACUUM PUMPS • PNEUMATIC HOISTS
GIANT OIL AND GAS ENGINES • CHICAGO ROCK DRILLS • COAL DRILLS

LITTLE
Coal



GIANT
Drills

handy lever is arranged at operator's station immediately back of the three main levers. The lever is connected to movable arms on the underside of the rotating frame which, when engaged align with similar arms projecting upward from the lower frame and operate the clutches on the driving axle.

Steering is accomplished by swinging the upper frame, and the shovel can be turned in a circle as small as 18 ft. 8 in. in diameter. Arrangements are provided for disengaging all clutches when desired so the shovel may be towed with ease.

The four belt flexible type of trucks can also be furnished and there are many instances where these trucks are desirable, for they can negotiate practically any kind of ground with a minimum of tipping and rocking of the shovel proper. Other mountings include traction wheels with either steel or rubber rims and railroad wheels for standard or narrow gauge track.

Liberal use of manganese steel is made in this new model. The dipper front is a single manganese steel casting of the same design and proportionately the same strength as the larger machines. Bevel propelling gears and shipper pinions are also made of manganese steel for they are continually subjected to vibration and shocks and experience has proven that manganese steel is much more serviceable in such places than open hearth steel.

The boiler tubes are electrically welded to top and bottom tube sheets, thus effectively sealing the ends against leakage. The boiler is fed with a duplex pump and injector and every convenience and appliance has been provided for the safe and efficient operation of the boiler.

The New 21 is readily converted into dragline, clamshell and orangepeel excavator or into a material handling crane. When long reach and high dump are required high lift equipment can be supplied.

Bulletins 228 and 305 have just been issued by the Marion Company and are available to anyone interested in this new shovel.

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STUDY OF ELECTRIC FURNACE REFRACTORIES

As it is hoped to develop refractories for electric furnaces, it is desirable to have a method and apparatus for measuring their conductivity at advanced temperatures, states the Federal Bureau of Mines. Moreover, data in regard to the conductivity of existing refractories at temperatures above 1,400 deg. C. are meager. It is proposed by the bureau to study the leakage factor thru refractories. The method of attack has been worked out and the furnace designed, the material for which is arriving at the bureau's ceramic experiment station at Columbus, Ohio.

✱ ✱ ✱

LENGTHENING LIFE OF TIES AND TIMBERS

Treating of ties and timbers has been given much study and thought by the Century Wood Preserving Co., Pittsburgh, Pa. This company treats ties and timbers for industrial plants greatly lengthening their life and usefulness. Decay in timber is due to the action of low forms of plants called "fungi" which feed on the wood and destroy the wood tissues. Any treating process to be successful must make the wood immune from the growth of fungi. To accomplish this modern wood treating methods aim to poison the food supply of the wood destroying fungi. Creosote and zinc chloride are the most effective and widely used preservatives because they will readily penetrate the wood and will not easily leach out or volatilize.

✱ ✱ ✱

TO WIDEN TRADE ASSOCIATION'S SCOPE

Doubtful points in connection with the activities of trade associations will be cleared up at the December session of Congress, it is expected, when amendments to the laws against combinations in restraint of trade are acted on.

Senator Edge of New Jersey plans to introduce a bill favored by Secretary Hoover to amend the Clayton act in such a way as to permit interstate trade associations to file with a governmental agency the plans of their associations. Such of these functions as do not appear to be in restraint of trade acts may proceed, after approval by the government.

Leading Clay Journal of the World.

BRICK *and* CLAY RECORD

Established 1892. Now in its thirtieth year.

Entered as Second Class Matter January 2, 1911, at the Post Office,
at Chicago, Ill., Under the Act of March 3, 1879.

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Member of Associated Business Papers, Inc.

Member of Audit Bureau of Circulations.

Subscriptions: One Year (26 Numbers), United States, \$3.00;
Foreign, \$4.00; Single Copies, 25 Cents.

Published Every Other Tuesday by

Industrial Publications, Inc., 407 S. Dearborn St., Chicago.

Telephone Harrison 9526

NEW YORK

CLEVELAND

KANSAS CITY

Chicago, November 14, 1922

Vol. 61, No. 10

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THE widespread publicity that has resulted from the publication by Brick and Clay Record of the special campaign devoted to plant betterment deserves more than passing interest.

Such well-known mediums as Nation's Business, Industrial Digest, American Contractor and others, as well as some daily newspapers, have been struck forcibly by the importance and unusual character of the message contained in the series of issues that have been in course of publication. These numbers which have been of special preparation, involving considerable expense and effort, have done more than aided the clay manufacturer who is alert to absorb new ideas.

By reason of the references made in the above publications, business men who build huge factories and structures, and contractors who use clay products in construction have had revealed to them the fact that the clay products manufacturers are doing their utmost to yield the best quality of products at the lowest price possible. Such publicity is obviously a considerable asset to the clay industry.

While Brick and Clay Record is glad of the publicity for the clay industry and for the recognition of its own humble efforts, it is considerably more pleased at the response from within the industry. Letters from manufacturers in Canada as well as in the United States have congratulated and commended this journal upon the new plant betterment department. Requests for extra copies of Brick and Clay Record have been so numerous that despite the fact that there are ordinarily a fair number of copies left over after distribution to regular subscribers, for reserve use, and that of each of the last few issues there have been printed even a greater number of copies, not a single copy of the October 3, 17, and 31 issues remains for distribution. Yet there are urgent requests for still more copies — orders which cannot be filled.

In order to aid friends of this publication to secure such copies of these numbers as they desire, 50 cents is hereby offered for each copy of the above issues received from anyone within the next ten days. Perhaps some reader will be persuaded to part with his copy for the benefit of others who desire them so strongly.

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A classified list for the convenience of readers of machinery, equipment and supplies used in the manufacture of clay products. Index to advertisements will give you page number of any advertiser, and by referring to advertisement you can get full particulars about products and addresses. If you don't find what you want, write us and we will tell you where to get it.

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Bearings. Caldwell & Son Co., H. W. Dodge Sales & Engineering Co. International Clay Mach. Co. Link-Belt Company. Robinson, Frank H. Webster Mfg. Co. Wellington Machine Co.	Brick (Ornamental). Louisville Machine Mfg. Co.		Critical Point Determinations. Brown Instrument Co.	Dump Cars. Wellington Machine Co.	
Belting. Allied Belting Co. Gandy Belting Co. Goodyear Tire & Rubber Co. Main Belting Co. New York Belting and Packing Co. Quaker City Rubber Co. Wellington Machine Co.	Brick Machines. (See "Dry Press," "Stiff-Mud" and "Soft-Mud.")		Crushers and Pulverizers. Bonnot Co. Chambers Bros. Co. Fate-Root-Heath Co. Freese & Co., E. M. Frost Manufacturing Co. Hadfield-Penfield Steel Co. International Clay Mch. Co. Lancaster Iron Works, Inc. Manufacturers Equipment Co. Mueller Machine Co., Inc. Robinson, Frank H. Steele & Sons, J. C. Wellington Machine Co.	Dynamometers and Generators. Burke Electric Co. Westinghouse El. & Mfg. Co.	
Belting (Elevator). New York Belting and Packing Co.	Buckets, Dredging and Excavating. Ball Engine Co. Bucyrus Company. Erie Steam Shovel Co. Link-Belt Company. Marion Steam Shovel Co., The.			Electric Furnaces. Brown Instrument Co.	
Belting, Silent Chain. Link-Belt Company. Morse Chain Co.	Buckets, Elevator. Hendrick Manufacturing Co. Link-Belt Company. Mullins Body Corp. Robinson, Frank H. Webster Mfg. Co.				
Belt Conveyors. Allied Belting Co. Caldwell & Son Co., H. W. Gandy Belting Co. Goodyear Tire & Rubber Co. Hadfield-Penfield Steel Co. International Clay Mach. Co. Lancaster Iron Works, Inc.	Burning System. International Clay Mach. Co.				
	Cables. Robinson, Frank H.				
	Cable Conveyors. Caldwell & Son Co., H. W. Lancaster Iron Works, Inc. Wellington Machine Co.				
	Carbonate of Barytes. Roessler Hasslacher Chem. Co.				
	Car Counter. Robinson, Frank H.	Clay Gatherers. Eagle Iron Works. Schofield-Burkett Cons. Co.			

Cyclopedia News

Devoted to Enlarging the Usefulness of the CLAY PRODUCTS CYCLOPEDIA

Published by
INDUSTRIAL PUBLICATIONS, Inc.

407 S. DEARBORN STREET
CHICAGO, ILL.

ITEMS MOST INTERESTING TO GENERAL MANAGERS

Of course every word contained between the two covers of the book is interesting and valuable to the general managers of some branch of the industry, but naturally some parts do not appeal to every branch, except in an indirect way. There are, however, many parts that appeal to every general manager, and space will permit us to mention a few.

The definition section contains 752 items covering equipment, processes and materials. This section covers 121 pages and is amply illustrated. Any item in which a general manager is interested can easily be found, as it is thoroly indexed and cross indexed alphabetically. A description of every item, including an explanation of its uses, will be found therein.

Plant Department Index

Few of you who are general managers are thoroly familiar with the best and most up to date practise in every part of the plant. In fact this is impossible because of the constant improvements and changes going on in the industry. Possibly at one time you had all of this information at your finger tips but the many details of business have crowded out most of it.

To satisfy this want we have classified every one of the 752 definitions by departments, and we have called this the Departmental Index of Plant Equipment, which can be found on pages 124 and 125. In this index we have 24 headings and 51 subheadings. Some of the departments use different equipment, processes and materials for the pottery and heavy clay branches of the industry. For instance the molding or machine, the drying, the setting and the burning procedure is quite different and we have listed them separately.

Improve the Inefficient Department

Suppose, for instance, you make brick and find that your burning loss is high and that you have tried every expedient you can think of. Suppose that you look up this index and under the classification Heavy Clay Products you find the following:

BURNING—Equipment

See items 55, 71, 95A, 108 to 110,

148, 176, 203, 240A, 255, 263, 372, 373, 376 to 384, 386, 389, 390, 392, 394 to 396, 398, 399, 513 to 517, 583A, 600, 636.

Processes and General Information.

See items 28, 52, 77A to 85, 117, 267, 276, 372, 387, 388, 400, 401, 542, 680, 686.

You find that the numbers refer to the items in the Definition Section of the book. You look up each and can easily select those that suit the conditions of your plant and that justify further investigation and inquiry on your part. This can be done for each and every department.

Visiting Plants Is Difficult

An excellent method of improving plant conditions is to visit many plants to see what others are doing. In most cases this will lead to a suggestion that will prove valuable. However, traveling costs money, takes time and is not always convenient. Moreover, at times the information is needed without a day's delay. That is where this index and the entire cyclopedia is invaluable—and it also helps to standardize on the best practises in every part of every branch of the industry.

In the Statistical Section you are most interested in the items on the classification of clay deposits, prospecting for clay, clay testing and winning, clay plant location and design and the details regarding the standard tests for manufactured products, such as common brick, sewer brick, fire brick, chrome brick, sewer pipe, drain tile, hollow building tile, refractories and electrical porcelain.

The cyclopedia supplies two very real and definite needs, first a source of information for data that you have not had in your past experience and second, information that you have been familiar with, but either have forgotten completely or have remembered in such an indefinite way that you fear to rely upon it.

Should Have General Knowledge

As a general manager you should also know, in a general way at least, what each one of your subordinates should know, so that you will be interested in the explanations regarding interesting items for men in other positions as they will appear in this page from issue to issue.

OUR COMMENT DEPARTMENT

John M. Cooley,
Haydenville, Ohio.

Industrial Publications, Inc.,

Chicago, Ill.

Gentlemen:

Enclosed please find check for the Cyclopedia, which I was very glad to receive some days ago.

The book certainly sells itself, and is something I've been after for a long time.

Yours,
John M. Cooley.

✱ ✱ ✱

Rudyard Brick and Tile Co.,
Rudyard, Mich.

Clay Products Cyclopedia,

Chicago, Ill.

Gentlemen:

Enclosed please find our check for \$3 in payment for the Cyclopedia, and pardon me for not sending check sooner, as the Cyclopedia is worth many times the amount you ask for it.

I have been a brick maker all my life and have come through a great many of the troubles that a brick maker runs

up against, and on looking your book over I see some things that I have not been troubled with as yet, and if I ever do your book will be my guide as it has cost me lots of money to find a remedy for some of my troubles.

Thanking you,

Yours resp.,

Rudyard Brick & Tile Co.,
Per Jas. Thornton, Mgr.

✱ ✱ ✱

The Albion Tile Factory,
Albion, Indiana.

Industrial Publications, Inc.,

Chicago, Ill.

Gentlemen:

Please find enclosed \$3 Postal Money Order for the Clay Products Cyclopedia you sent me some time ago. I have read the book about a third through and find it is well worth the price you ask for it.

My chief aim, also, is to help the clay industry in every possible way, and could not send this valuable book to you and do so. I remain,

Yours truly,

F. Landgraff.

BRICK *and* CLAY RECORD

(The Slogan Selected Will Appear Here)

(The opinion of our readers, expressing the purpose and spirit of this publication)

Labor and the Labor Saving Device

AN INTERESTING STORY, illustrating the difficulties sometimes encountered by a manufacturer when he attempts to install labor saving equipment, has recently come to our attention.

A firm in Connecticut equipped with a car tunnel kiln loads its brick directly from the kiln cars into the freight cars. This work is all done by hand and an average day's accomplishment for three men is 22,000 brick loaded into a car. The enterprising owners conceived a method of speeding up this work and one Sunday morning two of them set out to operate and try out a loading system designed by them which included the use of a gravity roller conveyor.

These two men, altho not trained for this particular task and unaccustomed to the heavy work involved, loaded 9,000 brick into the car in one hour. The experiment convinced them that their present method could be improved on and a saving made. On the following morning, therefore, they proceeded to instruct their men in loading brick into the cars according to the new system.

But here they encountered an unexpected obstacle. The men were averse to the introduction of new equipment and indifferent to its possibility of saving work for them. They purposely confused matters and made a bad mess of loading a car. Shipments of brick were too heavy at that time to attempt to iron out the difficulties and so the old method is still in use.

There are many experiences similar to this one among clay products plants. The apathetic attitude of men and in many cases even of the foremen and superintendents is often responsible for the failure of systems that have met with success elsewhere.

In nearly every case the reason why certain equipment and systems are advocated is because of their success in other establishments. In general, men are honest in their attempt to help a manufacturer. In trying out new methods a concern should realize that the application of a system is liable

to be wrong just as the system itself may be impracticable.

When a new system is being installed considerable tact and diplomacy should be used and the problem of introducing it without antagonizing the men should be studied.

How About Your Face Brick Market?

THE EXPRESSION, "Don't Bite the Hand That's Feeding You," became quite widely used during war times because of the unique way of urging patriotism. Such patriotism should reach into one's business and social as well as one's national life.

However, it is human nature to forget obligations to those agencies that lifted one into his present state of welfare, yet we never forget those agencies which brought us misfortune. However, when we neglect entirely to give credit where it is due and recognize the aid that has been rendered us, our ingratitude often proves a boomerang and redounds to our misfortune.

These thoughts come to us in considering the situation in the face brick industry. In 1922 thus far, it has been estimated by some who are in a position to know, there has been a 30 per cent. greater production of face brick than in any previous year in the history of the business. This is, indeed, a gratifying record, and is there anyone that fails to see the part that the face brick advertising campaign played in creating the market to absorb this production? With such large producing capacity, what would happen to the face brick industry if it failed to find a market for its output next year or the year after?

It is patent that vigorous efforts must be maintained by face brick manufacturers to keep up at least their present publicity campaign. To sit back now, glory in the present large consumption and do nothing to maintain it would be to invite a lower consumption in later years, that in turn would mean the keenest kind of competition in the industry. In such a situation only those unusually well fit would survive.

With the approach of the American Face Brick Association's convention

every face brick manufacturer should weigh these facts and determine what should be done to maintain a market large enough to absorb the present tremendous producing capacity.

Simplification Axe Reaching Hollow Tile

WHEREVER there exists an industry which manufactures a wide variety of products, that industry is carrying an unnecessary burden which is constantly sapping its vitality. For the purpose of freeing American industry of restrictions and to eliminate waste, the United States Department of Commerce has established a Division of Simplified Practice.

How successful an industry can be in eliminating unnecessary varieties, sizes and shapes has just recently been demonstrated by the paving brick manufacturers. Conferences of highway engineers, paving brick manufacturers and others found that 59 different kinds of paving brick had no real reason for existing and were not essential in highway building. As a result there are being used at present only seven varieties of paving brick.

Simplification cannot be accomplished, however, without the cooperation of the manufacturer. The paving brick manufacturers would still be struggling along with 66 varieties of product had the National Paving Brick Manufacturers' Association not been assisted by the individual manufacturers. The manufacturer ought to make every effort to promote the introduction of standards of simplified practice in the industry—it will mean lower costs and easier sales. Moreover, he should be keenly interested in what standards are adopted. The Hollow Building Tile Association has sent out a questionnaire in an endeavor to get information necessary to proceed with the work. We would urge every manufacturer of hollow tile, who has received one of these questionnaires, to fill it out with the necessary information and return it. If any tile manufacturer has not received a questionnaire, a line to the Hollow Building Tile Association or Brick and Clay Record will provide it.



PLANT BETTERMENT

"The time has come — the trend of conditions from now on will be steadily upward. With millions of dollars of future business on the bargain counter, it is time to act."—Roger Babson.



"A wise man," said Franklin, "who made a little improvement each day found at the end of the year a revolution in his business." Wise men are thinking and working ahead.

Stokers Cut Labor Costs in Half

Detroit Plant Also Increases Efficiency and Reduces Fuel Consumption of Boilers

The Mercier-Bryan-Larkins plant at Detroit has reduced the labor necessary in their boiler room by the installation of Jones automatic stokers. Each boiler is of 150 h. p. and each has one stoker. One man is all that is required on each shift, or only two men in 24 hours. Formerly three



Interior View of Boiler Room of Mercier-Bryan-Larkins Brick Co., Showing Four Jones Stokers.

men and one coal passer were required, or a total of four for 24 hours. The four stokers are supplied with forced draft by means of a fan. A regulator located at the fan controls the amount of steam fed to each stoker so that each operates at the proper speed. The coal is unloaded next to the boiler room, elevated to a bin and fed to each stoker thru the chutes shown in the illustration.

Production Capacity Of Dryer Over 150 Per Cent. Of Contents

Weathered Clay, Bonus System and Special Construction Combine to Load Dryer Cars Three Times in Two Days

Several advantages, always advocated for any plant, combine to render the waste heat dryer of the Barron Brick Co. at Roanoke, Ill., one of the most efficient, if not the most efficient, in the country. The dryer consists of 12 tracks each holding 15 cars, or a total of 180 cars. The plant, however, has an average production of from 285 to 300 dryer cars of ware per day. That means that 105 or 120 cars must be used

twice in a day, and that the ware made up to eleven or half past eleven every morning must be set the afternoon of the same day so that the cars can be returned to the machine in time to be loaded with green ware before the end of that day.

Strange to say, however, the dryer breakage is very small. The product is hollow building tile of the usual sizes from 2x12x12 to 12x12x12.

The features or advantages that combine to make this phenomenal record possible are first, weathered clay and shale. The raw material used at this plant is the refuse from a coal mine which has been weathering for many years. This enables the ware to withstand a temperature of 450 deg. F. in the dryer without breakage.

Secondly, the men are paid a bonus for all production over 270 cars. This insures the ware being set from the cars fast enough to produce full capacity.

Thirdly, the dryer is of special construction. Just inside of the receiving end there is an ordinary underground exhaust duct to draw out all heavy vapors which gather in the space below the deck of the car. In addition, the roofs of the dryer tunnels are inclined from six inches to two feet in height. These spaces are connected to another exhaust duct located on top of the dryer and 50 feet from the receiving or cold end. This construction eliminates the moisture more quickly and makes possible the speed of the drying operation.

Simplifying Mold Liner Grinding

Machine Does Work Accurately and with Less Time and Labor Involved

If you use metal molds or liners such as in the manufacture of dry press face or fire brick, soft mud brick or molds for various refractory shapes, you will be interested in this item.

The M. D. Valentine & Bro. Co. recently purchased a Bristol rotary, magnetic precision surface grinder for grinding and truing mold liners when they have worn down to the extent that true sizes and shapes of brick are no more possible. This plant is located at Woodbridge, N. J.

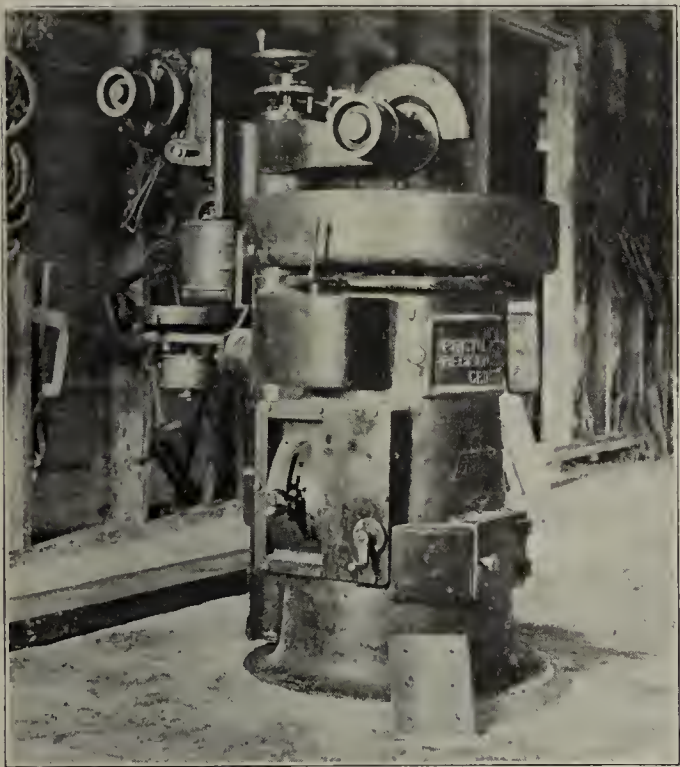
The apparatus which is illustrated in an accompanying view is motor driven. The base or die plate is a rotary magnetic chuck. The work to be ground consequently revolves underneath the grinding wheel. At the same time the grinding wheel swings back and forth at a speed which can be varied, but it is equivalent to the radius of the chuck. In this manner all parts of the surface come under the wheel and a beautiful finish, as well as a true surface, is produced.

REDUCE YOUR COST

The piece is held in position by magnetism which enables the operator to work with speed, eliminating the necessity of fastening the liners to the chuck.

The accuracy is within one-thousandth of an inch and the

on which there is a triplex chain block. In this way the castings can be unloaded with the minimum amount of labor and also with the elimination of danger of accidents. They



Rotary Grinder Installed in Fire Brick Factory for Grinding Mold Liners. Typical Example of Ground Liner May Be Seen at Base.

entire matter of grinding liners works at a much more rapid rate than can be accomplished by means of hand filing.

Unique Method of Unloading and Loading Heavy Castings

A Few Brick, Some Mortar, an I Beam and Chain Block All the Material Required

A very fine arrangement for handling heavy castings and repair parts has been installed at the plant of the Robinson Clay Products Co. at Mogadore, Ohio. At one corner of the building an I-beam was set into the wall and the pier shown in the illustration built under the other end. The castings loaded on a wagon are brought under this beam



Unique Arrangement of I Beam, Pier and Chain Block for Handling Heavy Castings.

can be loaded onto wagons by the same process when repairs are needed, and hauled to the machine for which they are intended.

"The Best Organized Pit in the World"

English Plant Handles Big Overburden with Conveyor

The "story" of this item will have to be told largely by the accompanying photographs. Last summer there appeared in the British Clay Worker a photograph and a brief description of a clay pit described as "The best organized pit in the world." Thru the kindness of Mr. H. Greville Montgomery,



Steam Shovel Places Overburden Upon Special Conveyor Which Carries It Over Edge of Bank and Deposits It in Clay Pit.



Second Shovel Follows After Overburden Is Removed and Excavates Usable Clay. Note Overburden Alongside Bank.

ELIMINATE WASTE



This View of Entire Pit Unfortunately Does Not Show Detail Plainly. The Cars Shown Are All Connected by Rope Guided by Pulleys Seen on Roadway.

editor of the above publication, and Major J. E. Hill, of the London Brick Co., additional photographs were secured which show plainly a unique method of operating a clay pit which has considerable overburden.

Unfortunately, we do not have complete data such as cost of operation, number of men employed, investment, tonnage handled, and so forth. But in the absence of these facts, we quote from the *British Clay Worker* as follows:

"The main pit today with its two shovels, one for stripping and one for getting together with a conveyor for putting the overburden back into the pit, has been described by one of the greatest authenticities on this class of work as the most perfectly organized pit in the world. Certainly the ease and smoothness with which sufficient clay for 1,000,000 brick can be dug and transported over a mile every week in the year, speaks volumes for the efficiency of the organization."

The method used might well be adapted by some American plants with slight modifications and, perhaps, with a reduction in cost of pit operation.

Storage Battery Locomotive Is Effective Dryer Pusher

One Man Does Work Formerly Requiring Three and Four Men and with Better Success

The use of manual labor for pushing cars in a waste heat dryer has been eliminated entirely at the plant of the Chicago Retort & Fire Brick Co., Ottawa, Ill. This company has installed an Atlas storage battery locomotive, as shown in the accompanying illustration. The tracks hold 12 cars inside of the doors, three on the cooling platform and two on the cold end outside of the doors. They have an ample supply of cars so that it is not necessary for the locomotive to enter the dryer. Two cars are usually pulled at a time, and then two cars placed on the same track and the locomotive employed to push these cars inside of the tunnel. This system enables them to keep their dryer doors closed at all times, and obtain greater efficiency from the dryer operation. One man operates the locomotive, whereas formerly three or four men were required to push a track of cars. This also required them to go into the heated part of the tunnel, and often they were forced to jar the cars in order to start the

string moving. Frequently this would cause brick to drop off, and eventually cause a wreck or trouble in the dryer. Companies operating fire clay mines could use this type of



Storage Battery Locomotive on Transfer Ready to Enter Dryer Which Is at Left.

locomotive to very good advantage hauling their clay to the mouth of the mine.

Crusher and Conveyors Reduce Labor and Upkeep

Sixty-four Per Cent. Saving in Labor and Great Decrease in Pan Repairs Effected

The Imperial plant of the Metropolitan Paving Brick Co. at one time used 11 men for feeding the clay to the dry pans. This company has four pans and at that time stored the clay in the shed in front of the pan and fed the clay to the pans on belts located as usual in troughs or tunnels beneath the level of the clay. Short boards were used as a cover over these belts and the men removed them in order to feed the clay to the pan. Some of these 11 men were used to take care of the pans and machinery.

In the spring of 1919, however, a 24x48 roll jaw crusher was installed, which receives all of the shale as it is brought in from the shovel. This breaks up the material into small particles. It is then transported by three conveyor belts

IMPROVE YOUR PLANT

that are about 30 inches wide and approximately 500 feet long altogether, and fed to bins in front of the pans by means of an automatic tripper which travels back and forth along the length of the last belt.

By means of the installation of this crusher and the conveyor belts, the number of men has been reduced from eleven to four, and the work appeals to a better class of men, because it is easier. In addition to this saving the company finds that the repairs to the pans are very much less than when the shale was fed to the pans without preliminary crushing. Formerly the large lumps broke many screen plates, and muller plates. Every part of the pans wore faster and they were frequently having trouble with the scrapers beneath the pan bottom. With the present arrangement trouble with the pans and repairs have been almost entirely eliminated.

Auxiliary Drying System Very Efficient

Fans and a Series of Pipes Enable Sewer Pipe Plant to Deliver Hot Air to Any Point in Factory

The plant of the American Vitrified Products Co. at Barberton, Ohio, has two methods of drying. There are the usual strings of one inch pipe running the length of the building beneath the second and third floors. These heat also the first and fourth floors. They have in addition a set of coils thru which they can send all or any part of the exhaust steam from the main engine and the two fan engines. The fans driven by the fan engines pull air past



Piping for Distributing Air Heated by Steam Coils to Any Part of Drying Floors.

these coils thereby heating it. The resultant hot air is forced underground to several points at which uptake pipes like the one illustrated are located. These uptake pipes have smaller pipes leading off in every direction as shown. The outlets to these pipes that are not in use are covered with caps.

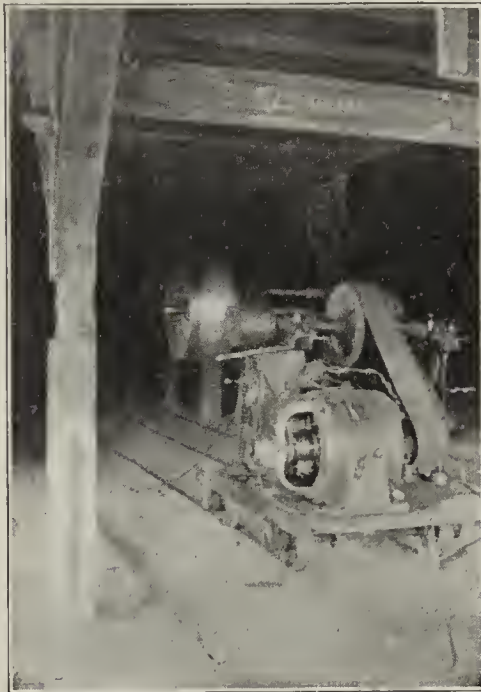
By means of this system the hot air can be forced to any point desired and kept entirely away from ware that is fresh and tender. This speeds up the drying and reduces breakage.

Dryer Pullers Eliminate Necessity of Entering Tunnels

Entire Operation Can Be Controlled from Outside of Dryer with Minimum Trouble and Breakage

In operating dryers that are heated by waste heat from cooling kilns, it is often difficult to pull the cars of dry ware from the tunnels and also inconvenient and hard to keep the

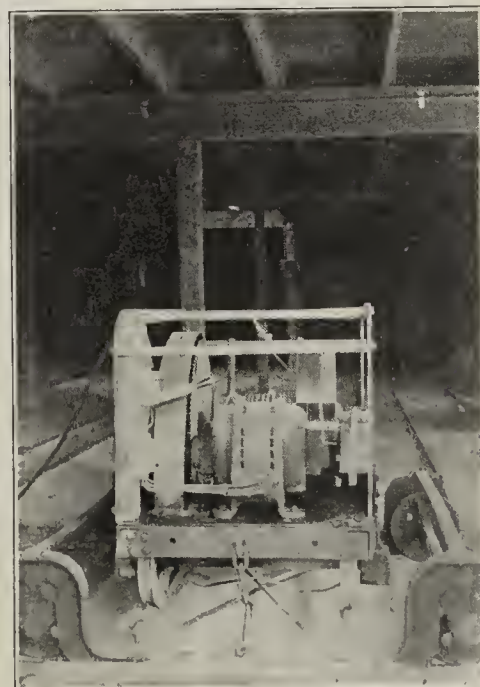
cars of green ware down towards the hot end of the dryer as far as possible. There is always an excess of heat in the tunnel, and the gases, in addition, are impossible to breathe. Men, therefore, can stay in these tunnels for only a short time. The North Iowa Brick & Tile Co. and the Mason City Brick & Tile Co. of Mason City, Iowa, are two of the plants in that district that overcome this trouble by having an electric motor mounted on a small car, driving



Dryer Puller at North Iowa Brick & Tile Co.

a drum. This drum is used as a car puller for each tunnel, as shown in the illustrations. The wire cable leading from the drum can be seen in one illustration, and the car is anchored to the ends of the rails so that it will not move. At

the North Iowa plant a wire of quarter-inch diameter is run beneath the cars of each tunnel. At the other plant light wire cable is used. In each instance there is a hook at the cold end of the dryer which is fastened to the last car on the track. There is also a hook on the hot end which is fastened to the wire of the puller. Attachment plugs are available at convenient points so that power can be obtained on every track. About five



Dryer Puller at Mason City (Ia.) Brick & Tile Co.

INCREASED PROFITS

cars are pulled from each track at a time, just enough to fill the cooling tracks at the hot end of the dryer.

Hauls Its Raw Material in Rebuilt Railroad Cars

Special Bodies Built to Hold 40 Tons. Doors Swing Out and Contents Dump Easily

The attached illustration shows carpenters at work on rebuilding a car at the Barberton, Ohio, plant of the American Vitrified Products Co. This plant ships in its raw material and uses its own cars for this purpose. They buy old flat cars and damaged gondolas from the railroads. If there is



Rebuilding an Old Railroad Car into a Side Dump Clay Car, Holding 40 Tons.

anything above the bed it is removed and rebuilt as shown. The center is built high to form an inclined slide so that the material will surely drop out when the doors, which are hinged at the top as shown, are unlocked. Each of these cars holds 40 tons of raw material.

Uses Simple Method for Testing Plant Equipment

An Idea That Every Clay Plant Can Use to Determine Best Equipment

Competition between equipment is a novel feature introduced by J. R. Thomas, of the Standard Brick Co., Crawfordsville, Ind. In the case of belt drives, where two drives are similar as to kind of work and capacity, etc., he uses belts of two types or two makes, and in this way determines the best type according to the performance given.

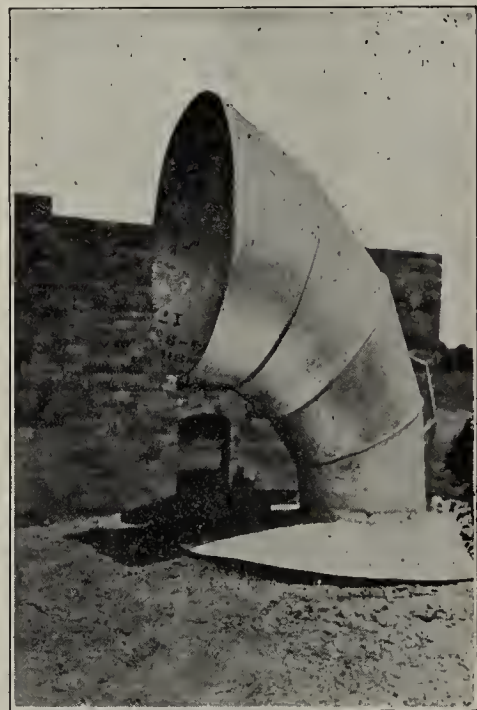
This is a very good way of determining the best type of equipment for certain work, and after it has been determined, it is well to standardize on it for all future requirements.

There are undoubtedly many plants that could use this idea, not only as to belting but also with regard to explosives, lubrication, babbitt, wheelbarrows and countless other equipment.

Ventilation for Kiln Gangs Without Cost of Operation

Attachment So Handy and Convenient That Its Use Becomes Second Nature

An ingenious method of cooling kilns has been installed by E. W. Dailey, manager of the North Iowa Brick & Tile Co. of Mason City. These attachments have the appearance of steamship funnels. They are made of a diameter just small enough to fit into the top crown hole of the kilns. A flange fastened onto the pipe rests on top of the kiln and prevents the funnel from dropping in. These funnels can be moved in any direction according to the direction of the wind. The object is to have the wind cause a suction at the upper opening, and thus create a circulation of air thru the kilns. One is used for the setting gang and one for the emptying gang. These have assisted the men considerably in withstanding the hot weather, and do not cost anything for operation. They must be weighted down to prevent a strong wind pushing them over.



Ventilation Funnel in Place at Center Hole of Round Down-Draft Kiln Crown.

Numbered Posts Placed at Intervals Prove Helpful

Assists in Proper Storage, Keeping of Inventory Records, Shipping to Specifications, Efficient Switching Service

The storage yard at the Imperial plant of the Metropolitan Paving Brick Co. of Canton, Ohio, is marked off by numbered posts as shown in the illustration. This is done for several reasons, first the wheelers can be told, at the kiln, where to pile the brick if they are to be stored. In the second place the inventory can be recorded according to these same numbers and the amount of brick in each pile kept separately. Then again samples from each pile are tested in the rattler, so that they know before shipment what tests each pile will stand. The fourth advantage is that it expedites the work of the switching crew. Naturally this redounds to the benefit of the plant. Before it is time for the switching crew to come into the yard, the shipping clerk makes out a switching list denoting by the numbers on the posts what cars are to be taken and where the empties are to be placed. He places this switching list in a mail box, such as usually used on rural routes, which is located at the point where the yard

SET ASIDE DIVIDENDS

switch branches off of the main line. This gives the full information to the crew at the earliest possible moment, they



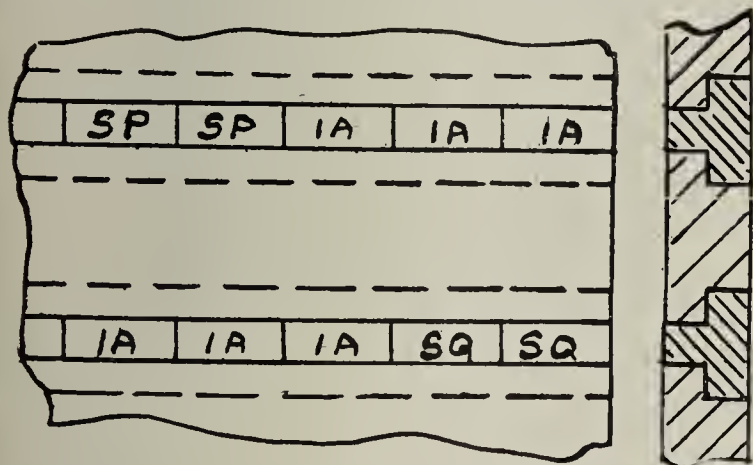
Numbered Posts for Marking Storage Piles and Loading Points Next to Railroad Track.

know exactly what to do, and they give more satisfactory service because of this cooperation on the part of the plant.

Location of Various Types of Ware in Dryer Indicated Easily

Series of Slots That Hold a Number of Small Pieces of Wood Act as Indicators

A very useful system of indicating the location of dryer cars has been adopted at the plant of the Chicago Retort & Fire Brick Co., Ottawa, Ill. This system was started by Ceramic



Front and Side Elevation of Good Original Homemade Dryer Indication Arrangement. 1A Indicates No. 1 Arch Brick. SP Indicates Spllt Brick. SQ Indicates Standard Straight or Square Brick 2½x4½x9.

Engineer G. F. Bissell. There are 22 tracks in this waste heat dryer, and a board is mounted on one side of the dryer wall with one slot for each track. Small pieces of wood are

made so that they can fit into these slots and be moved along. The face of each piece that is exposed to view is marked with the type or shape of brick that is loaded onto the car represented by this piece. When a car is placed in the dryer, the corresponding piece of wood is entered into the slot provided for that track, and pushes along other pieces of wood representing the other cars in the track. This arrangement is very serviceable for plants making different shapes of ware, such as fire brick, silica brick, drain tile, and hollow building tile. It can also be used where a plant makes face and building brick which must be set in different parts of the kiln. A glance at the board will indicate the location of the ware desired, and how many cars must be moved from the hot end in order to reach those desired.

Savings Repay Cost in Two Months

Substitution of Conveyors for Wheelbarrows Will Also Improve Labor Conditions

The labor of three men has been eliminated by the installation of one of the large roll crushers and proper feeding devices at the plant of the Chicago Retort & Fire Brick Co., at Ottawa, Ill. Formerly four men were employed with hand picks to feed the fire clay as brought up from the pit thru a "grizzly" or grating. The clay dropped directly onto the belt, which at times was overloaded. As a consequence, some of the crushed material was continually dropping off the belt as it moved towards the factory.

With the present installation the material is dumped into a large bin. At the bottom of this bin there is a continuous apron feeder which maintains a constant feed from the bin to the large roll crusher. As the material falls thru the crusher it drops onto the belt. This arrangement prevents excessive wear on the belt because the material drops such a short distance and is in such a finely crushed condition that there are no sharp corners. In addition the constant feed eliminates a great amount of the wear on the edges of the belt and further eliminates the spillage of the material during its passage along the route to the factory. This always entailed additional labor for reloading it.

The entire equipment and operation is cared for by one man. The saving in labor, in addition to the other savings, has paid for the improvement in a few months.

This installation takes care of an average of 300 tons per day. In 1919 they installed a balata belt, and it is in almost perfect condition today. It is over 350 feet long.

Eliminates Irregular Cuts Which Make Tile Unsalable

Automatic Trip Catch Keeps Arm of Cutting Reel Tight Against Guide Arm

The Hawkeye Clay Works of Fort Dodge, Ia., has eliminated making rough cuts on their hollow building tile by a catch which engages the cutting arm of the reel just as it enters the clay column at the start of the cut. There is always a tendency for the cutting arm of the reel to spring away from the guide arms. This causes an uneven end cut. To obviate this a small catch is provided which keeps the cutting arm tight against the guide arm.



Pages 718 and 719 may mean \$100 to you.

Disagrees with Us on Coal Policy

Prominent Western Clay Manufacturer States Reasons Why Brick and Clay Record Is Wrong in Advising Purchasing of Large Coal Supplies Now

FAILURES in attempts to forecast the coal situation number too many among those acknowledged as worthy authorities, to ignore the arguments and conclusions reached by those who hold different views on this subject. The opinions advanced by Brick and Clay Record on the coal situation have been stated in past issues of this journal—particularly the October 17 number.

It is only fair and just that Brick and Clay Record publish the views of those who differ with it on the policy of fuel purchases. Below is printed parts of correspondence between Brick and Clay Record and B. W. Ballou, general manager of Kansas Buff Brick & Manufacturing Co., Kansas City, Mo. Mr. Ballou is a keen observer and ranks as one of the leading and brightest minds in the clay products industry. Brick and Clay Record is indebted to Mr. Ballou for his frank and friendly criticism. The intercorrespondence should be of considerable value to readers since both sides of the question on the fuel situation will be argued and there will be better opportunity for readers to deduce proper conclusions for their own guidance.

B. W. Ballou Advises Against Buying Coal

Along with the articles on the coal situation Brick and Clay Record printed a special bulletin advising the purchase of large supplies of coal immediately. This bulletin drew from Mr. Ballou the following criticism:

"Your special bulletin No. 3 in regard to purchasing of coal has been received.

"I appreciate, of course, the work of Brick and Clay Record in serving the clay industry, but I am bound to believe that you are making a big mistake in advising the purchase of coal at any price, and also advising clay manufacturers to stock up on coal. This is the very thing that the coal people want done, and nothing will so run the price of coal up as to stampede everybody to buy coal and lay in a big stock. In my opinion the thing for us all to do is to buy moderately as we need it, both for industrial and domestic purposes, and if it is true that, as we are advised, there are 200,000 more coal miners than are needed, it won't be long until we will have all the coal we want and at a fair price."

Why You Should Buy Coal Now

To explain in more detail some of the premises upon which we based the conclusion expressed in our special bulletin, Brick and Clay Record answered Mr. Ballou as follows:

"As to the message on our postcard and recent articles on the coal situation, we felt this to be the best conclusion after talking with many coal operators, railroad men and others with a detached viewpoint on the coal industry. The coal operators, of course, are very anxious to have the country feel that there will be a coal famine this winter. We have made allowances for this.

"Briefly, however, the situation stacks up like this: There are plenty of miners and plenty of mines to deliver all the coal that every stove, furnace and firebox can burn. This is not the crux of the situation, however. Transportation is the key to the coal problem. Coal cannot be stored at the mines and must be mined in accordance with the supply of railroad cars available. Moreover, altho there may be almost enough cars, there is a great shortage of locomotives.

"It is quite well recognized that our reserves in coal were

almost completely consumed. The consumption of fuel for homes, apartments and hotels, is something like 70,000,000 tons annually. These 70,000,000 tons are almost wholly consumed in five months, beginning perhaps in the middle of November and ending in the middle of April. This means that approximately 12,000,000 tons of coal are consumed each month for just domestic use. But 12,000,000 tons of coal is the maximum weekly ability of the railroads to move coal.

"Thus, one week out of every four, the total coal tonnage moved by the railroads must go for household use. At the present time, the excess of coal shipments over consumption is hardly large enough to take care of this 12,000,000 tons extra consumption that will be under way when the householder begins to burn coal heavily.

Railroad Facilities Are Inadequate

"Now on top of this, we have been exceedingly fortunate as to weather conditions which of course aid the railroads considerably in coal movements. In January and February we doubt whether the railroads can keep pace with the fuel consumption.

"We believe that it is reasonable to assume that business conditions will maintain their excellent past and that the clay industry, especially, can look forward to a favorable demand next spring. Would it not be unfortunate if the industry could not purchase coal in March and April to burn the products required to supply the demand? Stocks carried over are not nearly large enough to take care of a demand should coal not be obtainable. Hence, it is our fear of what will happen next March or April which prompted us to send a message in our special bulletin No. 3, and which we still feel deserves consideration.

"We appreciate, that for the present, coal can be obtained and there is no need of worry. We believe, however, that now is the best time to buy coal that will be required next March and April. At that time we are of the opinion this country will see a scramble for all coal available.

"The large consumers are now holding off purchases and when a time of stringency comes, due to their largeness, they will be able to secure coal while others suffer.

"We may be wrong in our views on this matter, but it is our opinion that the price of coal will not go down sufficiently between now and next spring to gamble on the chance of getting coal cheaper against the possibility of obtaining no coal at all."

Why You Should Not Buy Coal Now

The above reply to Mr. Ballou's first letter brought the following response which outlines in an able manner some arguments against the purchase of large supplies of fuel now and against the possibility of there being a fuel emergency in March and April of next year.

"I want to first assure you that my sole reason for writing you as I have was an endeavor to help out the situation in any way that I could, and I also appreciate what you are doing along the same line. But, answering your letter, I am still of the opinion that you are wrong. You are advising the purchase of coal this winter to be used in March and April, while as a matter of fact, the heavy coal consumption for domestic purposes especially will be over by the middle or latter part of February.

"It is my opinion that when the brick industries want the coal they will need when they start up in the spring, there will be plenty of coal available, and at no higher price than they are paying now. In all probabilities, it will sell for less. Furthermore, in this part of the country especially, stored coal is worth from 50 to 75 per cent. of what the coal freshly mined is worth for brick burning purposes. This may not be true in the East, but it is certainly true in this section, and no doubt there is a considerable deterioration on even the best grades of eastern coal.

Ballou Fears Stampede

"I appreciate that when the large industries want to buy coal, they will go out and buy it, and if we are all in the market at the same time, they will get the best of it, which is perfectly natural. At the same time, if the brick industries could buy coal and store it, and hedge against a rising market or scarcity of coal, it would be a nice thing to do; but if we ever start to buy coal, everybody will do the same thing. The coal man then will have the satisfaction of sitting back and seeing everybody take it at a good price, and smile while we are scrambling for it, carrying it in stock, with a depreciated value of the coal staring us in the face for next spring."

If any more manufacturers should like to discuss the fuel situation, Brick and Clay Record would be glad to give space to the discussion of the intricate points which all have a bearing upon the important subject of the coal situation.

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IMPORTING BRICK NO "SNAP"

An interesting sidelight on the importing of brick was contained in the Jersey City Journal recently. This paper said, "The captains of ships which carry brick have to be very careful. An ordinary brick is capable of absorbing a pint of water. So, with a cargo of brick in the hold, serious leakage may quite well go on undetected, for the water that enters is sucked up as fast as it gets in. If this should be the case the consequences are bound to be most serious."

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KENTUCKY MEN WILL MEET IN JANUARY

The usual meeting of the Kentucky Clay Products Association is scheduled to be held in Louisville in January, although very little has been heard so far concerning plans for the meeting this year. Secretary J. Crow Taylor, Louisville, will probably issue a call in December.



Hollow Tile Association Opens Omaha Branch

HARDLY A WEEK GOES BY that the Hollow Building Tile Association does not have some interesting announcement to make regarding a new development within the association. This organization has recently begun establishing branch offices in various strategic locations in the country

of Sandusky, Ohio. He was general manager of the Iroquois Portland Cement Co., Caledonia, N. Y., for four years, and western representative for Whitehall Portland Cement Co., Philadelphia. His most valuable experience was gained while with Warner-Miller Co., New Haven, Conn., one of the largest jobbers in building materials in the East. Mr. Bacon spent nine years with this company introducing Denison interlocking tile and the use of hollow building tile in exterior walls.



EDSON C. BACON

Simultaneously with the announcement of the opening of two new branch offices, J. S. Sleeper, acting secretary of the Hollow Building Tile Association also stated that the organization has added new members in the last few weeks thereby doubling the potential tonnage production of the membership. At the rate which the association is adding members it will very shortly be one of the most powerful of the clay products associations. Interest in its activities is of the keenest as is evidenced by the many firms who have become members recently. This interest is deserved as both the association and the product which it is promoting are highly progressive. A number of companies who were members some time ago but had dropped out are coming back. Following is a list of firms which have recently joined the association:

Alabama Brick & Tile Co., Decatur, Ala.; American Brick & Tile Co., Mason City, Ia.; O. C. Barber Allied Ind. Co., Canton, Ohio; Eastern Illinois Clay Co., St. Anne, Ill.; Fairchild's Brothers Clay Products Co., Endicott, Nebr.; Hancock Brick & Tile Co., Findlay, Ohio; Mansfield (Ohio) Shale Products Co.; Mason City (Ia.) Brick and Tile Co.; Nebraska Clay Products Co., Omaha, Neb.; Ottawa (Ohio) Tile Co.; West Point (Miss.) Tile Co.; Yankee Hill Brick & Tile Co., Lincoln, Neb.; York (Neb.) Brick & Tile Co.; Whitacre-Greer Fireproofing Co., Waynesburg, Ohio; Coal, Clay & Rock Products Co., 637 Second National Bank Bldg., Akron, Ohio; Carlinville (Ill.) Brick Co.

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and now has representatives in Toledo and Omaha. The Omaha office has only just been established and is under the direction of Edson C. Bacon. This territory includes most of the West North Central states.

Mr. Bacon, who will be located in Omaha, is a man of considerable experience. He started with his father in the architectural and contracting business. Later he became secretary and general manager of the Vincent Valve Co.,

Cinder bricks are 30 to 35 per cent. cheaper than ordinary brick or tile, it is said.

Business Briefs and Trend

COMMODITY INDEX SHOWS GAIN

Dun's commodity index shows an average increase of $3\frac{3}{4}$ per cent. for October and $11\frac{3}{8}$ per cent. over the corresponding date last year. As compared with the low point since the war (July 1, 1921), the increase to November 1 has been $15\frac{1}{4}$ per cent. Prices are still $30\frac{7}{8}$ per cent. below the high point of May 1, 1920, and 51 per cent. above the average of August 1, 1914.

* * *

HOW RAILROAD EFFICIENCY HAS DECLINED

In the ten years ending with 1907 the increase in railway freight business in this country averaged 14 billion tons carried one mile annually, said S. O. Dunn, editor of Railway Age. In the next ten year period, that ending in 1917, the increase in freight business averaged almost 16 billion tons carried one mile annually. The average increase per year in the 20 years from 1897 to 1917 was almost exactly 15 billion tons carried one mile.

In the latter part of that 20 years the railways had greater and greater difficulties in handling the normal increase in their business. Congestions and so-called shortages of cars ceased to be merely occasional and sporadic, and became chronic.

In order to increase the business handled the government assumed operation of the railways at the beginning of 1918. In spite of all the efforts made under government operation, it was found impossible to increase the freight moved in 1918 more than two-thirds as much as what had previously been a normal increase. In 1920, with the railways again under private operation, the managements exhausted their utmost resources in efforts to handle all the business offered. They again increased the freight moved, but they failed by a substantial margin to move all that was offered. The average increase in the amount of freight moved annually in the three years ending with 1920 was only five billion tons carried one mile, or only one-third of what had been the normal annual increase during the preceding 20 years.

* * *

COAL SHIPMENTS INCREASE

Preliminary returns on coal production in the week ended November 4 indicate a total of 12,500,000 net tons of which about 10,700,000 tons are bituminous coal and 1,800,000 tons are anthracite. Revised estimates for the fourth week of

October show 10,681,000 tons of bituminous and 1,773,000 tons of anthracite. Thus a slight increase in the total coal raised is shown for the present week as compared with the week before.

Loadings of soft coal on Monday, October 30, as reported by the railroads, was 45,298 cars, the largest number reported for any day of this year. On Tuesday loadings declined about 30 per cent. and on Wednesday showed a further decline to 28,043 cars. On Thursday, the rate of output increased and the loadings reported were 29,598 cars. The total for the first four days of the week ending November 11 is a little larger than for the corresponding days of the week preceding. Production has increased during the last three weeks principally because of improvement in transportation. Approximately 45 million tons of bituminous coal were produced in October.

* * *

SAY BUILDING COSTS WILL RISE

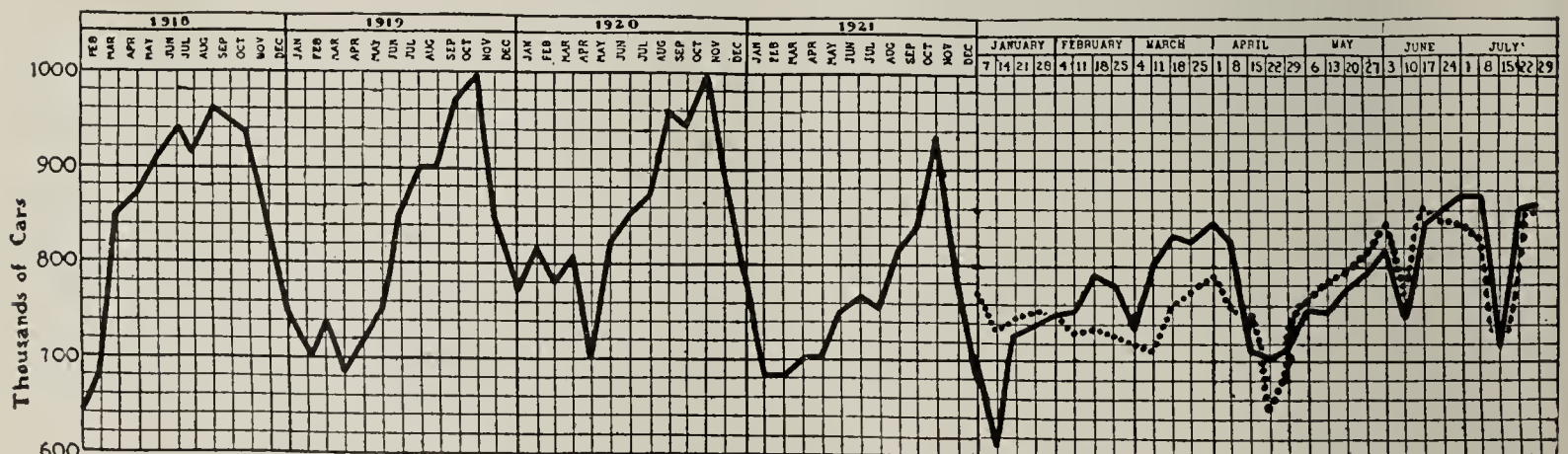
That construction costs will continue to increase to a higher level than at present, and that the demand for construction will continue for some years to come, is the opinion of the Associated General Contractors of America, in a statement made to James A. Wetmore, Acting Supervising Architect, who is quoted as authority for the statement that within the next 18 months the country may look for a very material drop in the cost of building.

In explaining their reasons for these opinions, the contractors say that the costs of building materials are going up partly because they are partaking of the general tendency of prices to rise during this part of the economic cycle, and partly because we are experiencing a building boom of unprecedented volume. Wages of building labor are increasing partly because of the shortage brought about by this same building boom and partly because of a recovery in other lines of industrial activity, which is already beginning to produce labor shortages.

* * *

COMMON BRICK PRODUCTION DECLINING

Production of common brick is beginning to reflect the usual seasonal conditions, says the latest monthly digest of the Common Brick Manufacturers Association. "The total production for the month of October is 95,192,000," says the bulletin, "and the amount of brick removed from the yards was 78,000,000; stock on hand is 190,756,000 as compared



This Graph Shows Number of Freight Cars Loaded from January 1, 1918, to Latest Period Available. The Weekly Loadings Are Averaged for Each Month up to 1922, but Are Shown Weekly Since January 1 of This Year. The Broken Line Is an Average of the Two Previous Years, Which May Be Used for Comparison with Current Conditions.—Compiled by A. B. P. News and Printed in Industrial Digest.

with 173,361,000 of burned brick on hand a month ago. There is also a slight reduction of orders on the books; the current figure being 234,328,000 as against 265,878,000 on the first day of September."

According to the digest there is only one section of the country today which is not doing a fair volume of building and that is the agricultural part of the Middle West, with Iowa, Nebraska and Kansas as its center.

* * *

FREIGHT LOADINGS APPROACH RECORD

Railroads are making every effort to relieve the car shortage and all available cars are being pressed into service. Freight loading in the week ending October 28 was 1,014,480 cars, the second largest week in history. This was only 4,059 cars under the record set in 1920. Coal loading was 197,928 cars, coke 11,388 cars and ore 48,005 cars.

* * *

COAL STOCKS INCREASING

Stocks of coal are mounting, production is increasing and the price is steadily decreasing. Bituminous coal stocks on November 1 amounted to 30,000,000 tons, compared with 28,000,000 on October 1, and 22,000,000 on September 1. A survey shows that on October 1 steel plants had 17 days' supply on hand; by-products plants 14 days', and railroads 15 days'.

* * *

SAYS ASSOCIATIONS NEED FEDERAL HELP

Creation of a governmental agency to advise and supervise the activities of trade associations is favored by Attorney General Daugherty and he has approved the plan originated by Secretary of Commerce Hoover looking toward the enactment of legislation to this end. In a statement prepared at the request of the Chamber of Commerce of the United

States, Mr. Daugherty expressed the belief that the number of violations of the law by business men can be reduced to a minimum if the Government will provide a means of assisting them to keep within the law. By setting up the necessary machinery to pass on the plans of business organizations, the Attorney General thinks that American producers will be enabled legitimately to strengthen their hands in search of markets, and that the Government at the same time will avoid such expensive investigation and litigation.

* * *

SECRECY HARMS ONLY THE SECRETIVE

"Experience in dealing with producers of different commodities has shown that secrecy is largely a method by which producers have been fooling themselves," says George Otis Smith, the director of the U. S. Geological Survey, who has had long contact with production statistics. "Those who really wish to know the scope of competitors' activities have plenty of ways to find out. Secretive operators, who eventually decided to change their methods, have been surprised very much on disclosing their secrets to find that these secrets already were well known to their competitors."

This comment was occasioned by correspondence with S. K. Colby, the president of the American Magnesium Corporation. There was some hesitancy as to whether the Survey's annual chapter on magnesium should be written, as there is only one company active in its production. Presumably the company is entitled to keep its results to itself. An effort was made, however, to get permission to use these figures so that the Survey's records would be continuous. In his reply furnishing the figures, Mr. Colby expressed his hope that the chapter would be printed, so as to record the progress in the industry. He stated his company had nothing to lose by having the quantity of metal produced by it made public.—Chemical and Metallurgical Engineering.



The Building Situation

CONSTRUCTION ACTIVITIES continue at an encouraging status in the New England districts, and the decline from the peak of a few weeks ago is far less marked than in the case of the seasonal change of previous years. Contract awards have reached as high as \$8,000,000 a week, during the past fortnight, as compared with about one-half of this sum at the same time in 1921 and 1920. Speculative building is taking on a decided revival, following the slump which came with the turn of fall.

There is a good volume of new construction in progress in Connecticut and Rhode Island. Building permits from the leading cities in the first noted state show considerable increase over the 1921 figures, averaging more than \$1,200,000 weekly.

New York

Immediate new projects in sight in New York exceed \$11,000,000 in valuation, while current weekly contracts average around \$6,000,000 a week. Brooklyn is recording well over \$2,000,000 a week in new house operations, and a building boom is prophesied for Queensborough, which has rounded out a total of more than \$100,000,000 in new buildings during the past ten months.

A primary cause of concern is the growing shortage of a number of basic building commodities, brought about by the recent freight embargo and the present freight congestion. There is likely to be a serious condition of affairs and thousands of dollars of construction held up unless relief is found.

There is an increasing demand for common brick in the wholesale market and dealers are becoming more active for their winter requirements. The price has declined to \$15 and \$15.50 a thousand, as compared with a \$16 quotation a fortnight ago. Heavy cargoes are still arriving from the up-state points, ranging as high as 39 weekly, with current distribution practically absorbing the entire amount.

The 1922 brick manufacturing year is over at the seasonal yards in the Hudson River district, and but few of these plants remain on the active list. There is a plentiful amount of green brick still to be placed in the kilns and it is expected that this phase of work will continue until after the turn of the year. The modern dryer plants are maintaining fair operations and look to hold to continual production thruout the winter.

New Jersey

Heavy construction operations in the different leading cities of New Jersey give indication of an active period during the winter months. The fine open weather is leading to the commencement of projects which, ordinarily, would be held up, and as a consequence, totals are being swelled to new high levels for this time of year. Newark building permits are running from \$500,000 to \$800,000 a week; Trenton from \$350,000 upwards; and Camden well over the \$100,000 mark, average.

The growing scarcity of building supplies is only seconded

(Continued on Page 742)



One of the Views Which Will Greet Delegates to the Face Brick Convention. Grounds of West Baden Springs Hotel.

A.F.B.A. Event Replete with Specials

**Both Hotel and Program Making Special Efforts to Secure
"Best Ever" Verdict from Guests at Convention December
5, 6, and 7—Dealers and Non-Members Attendance Desired**

"PREPARATIONS UNDER WAY for the annual convention of the American Face Brick Association at the West Baden Springs Hotel are being made with this one idea in view—that when you leave, you will say it was the best convention you ever attended,"—so says Geo. E. Allen, convention manager of West Baden Springs Hotel, to those who propose to attend the big A. F. B. A. meeting.

While no definite promises have been made, there are many indications that the hotel will make special concessions to the visitors. Service will be given that will instill into the hearts of the delegates the feeling that no hotel has ever made greater efforts in its endeavors of hospitality. The low rate of \$8 per day including meals is one of the concessions offered to the guests.

Nationally Eminent Speakers

So much for the hotel's part. While environment and hotel hospitality and comfort aid a great deal, they do not make a convention. Secretary Hollowell, whose ability to arrange a program replete with exceptional talent and subject matter is well known, has gone the hotel one better and has combed the country for speakers whose national eminence guarantees an event of extraordinary attraction.

Altho practically all speakers have accepted, it is desirable in only a few cases to mention their names at this date.

The convention will be divided into three regular sessions and a fourth one devoted to a consolidated division meeting. The first session, which will be held on Tuesday, December 5, will be devoted to business matters including the general and financial reports by the secretary-treasurer, general report of director of service, reports of committees such as: the committee on research, F. W. Butterworth, chairman; committee on accounting and statistics, F. T. Owens, chairman. The amiable president, Eben Rodgers, will undoubtedly have an important message contained in his presidential address which will be delivered at this session.

Cost System Devised

The second session, which will commence at 10:00 a. m. Wednesday, December 6, will begin with a speech by a nationally known architect on the architectural possibilities in face brick construction. It is also at this session that a presentation will be made of the association's revised cost accounting plan arranged by E. H. Scull, of Chicago. A manual has been prepared so complete in detail and clear that any bookkeeper, by following it, can correctly enter any kind of accounts such as are common to face brick produc-

tion. This feature of the program should be of tremendous interest.

The afternoon will be devoted to the consolidated division meeting. Aside from one minute reports on fundamental conditions in the industry from all members present, an eminent and nationally known industrial engineer will suggest avenues of improvement in the production of face brick.

Taxes to Be Discussed

The session scheduled for 10:00 a. m., Thursday, December 7, alone, would be well worth every member's attendance. It is doubtful whether any better qualified man than Attorney J. W. Good of Good, Childs, Bobb and Westcott could be obtained to discuss the government's attitude towards claimants, and so forth, on the matter of adjustments of claims on federal income and excess profits taxes.

The Curtis Publishing Co. leads the world in the matter of magazine advertising revenue. The association will have the privilege of hearing an address from the director, C. C. Parlin, of the Bureau of Research of this concern, speak on the psychology of the face brick publicity campaign.

Everybody Welcome

The above briefly mentions the high lights of the face brick manufacturers' program. It is very obvious that there are many items included in the program that should interest every face brick manufacturer. Regardless of whether or not he is a member of the association the American Face Brick Association welcomes the attendance of every face brick manufacturer, without obligation to him.

To eliminate inconveniences of travel from eastern and southern points the Cincinnati Brick Club is making arrangements to facilitate travel to West Baden. The railroad connections from the South and East are poor, and to take care of the situation the Cincinnati Brick Club invites all delegates and visitors to the meeting to join with it on its special arrangements. A special chartered train will leave Cincinnati at 9:30 on the evening of December 4, and without stopovers or changes arrives in West Baden the following morning.

Letters have been addressed to many of the prospective delegates inviting them to be guests of the Cincinnati Brick Club on the evening of December 4. However, individuals who do not receive these invitations are invited to make reservations by writing McLean Remelin, secretary of Cincinnati Brick Club, care Chamber of Commerce.



The "Heads" of the Face Brick Industry. These Are Manufacturers and Dealers Whom You Will Probably Meet at the American Face Brick Association Convention.

Face Brick Dealers

While little has been said, so far, about the dealers, their officers have not been idle. At the time this issue goes to press the dealers were not yet ready to disclose their plans, but it is safe to assume something worth while will be brought before the dealers. Every face brick dealer is invited by the American Face Brick Association to attend so that he might meet the manufacturers, and is moreover urged to come so that matters of direct interest to the dealer can be taken up by the dealers separately in their own meetings.

* * *

WHAT SOME CITIES THINK OF PAVING BRICK

William Allen White, noted editor, publicist, author and observer, prints the following editorial on pavements in his own paper—the "Emporia Daily Gazette" of Kansas—whence it is picked up and reprinted by the Brazil, Ind., "Times" in its issue of September 18, 1922. He says:

"In order to get a proper perspective let us look forward to 1932 and backward to 1912.

"People who are paying their last assessments now, know how people will be feeling then. The Emporia people who got in 1912 are paying for grief. It is cracked and rutty and full of holes. The people who are paying for in Emporia are not happy about it.

"The people paying for BRICK are happy. Openings made for water and sewer connections for new buildings in the neighborhood have ruined the but NOT THE BRICK. Brick is not a dust raiser. It is free from depressions holding water and mud. X reflects the heat and glare of the mid-summer sun.

"Ten years in the life of Emporia is a considerable span and the conditions to be met by a street material are severe.

"The material which meets all requirements at the lowest cost per year of service is brick with asphalt filler on a good foundation."—Dependable Highways.

* * *

REMARKABLE RESULTS OF TILE DRAINAGE

That tile drainage is a profitable investment in dry as well as wet seasons is shown by the experience of J. T. Lewis, prominent farmer of Pitt County, North Carolina. On 26 acres of tile-drained land during the dry season of 1921, he raised over 30 bales of cotton. Similar land not tile-drained produced only one-half bale per acre. With the exception of installing the tile and a light application of lime, nothing

was done toward improving the drained field over the rest of the farm.

Mr. Lewis tells the following story in regard to his experience with tile drainage: "Four years ago I drained a 29 acre field with tile drains spaced 100 feet apart, and from 3 to 3½ feet deep. The complete system cost about \$800. Tobacco was planted on eight acres of this field during the first season, and the net return from the crop on the eight acres was over \$100 per acre more than the net return from any other tobacco land on my plantation. In other words, these eight acres in one season paid for the cost of tile draining the whole 29 acres. - I went over my figures three times before I could believe that I had not made some mistake.

"In June that year, two heavy rains came within three days of one another. Three days after the second rain, I was able to work my men and teams in the tile drained field, which was formerly the wettest field on the place, while it was ten days after the rain before I was able to get a mule into any other field. Last year, an exceptionally dry year, the crop of cotton from 26 acres of the tile drained field was over 30 bales. The rest of my cotton land yielded about one-half bale per acre. I certainly consider tiling a success and plan on tiling my entire farm before buying or clearing another foot of land."

* * *

AGRICULTURAL ENGINEERS MEETING

Manufacturers who find among the farmers a good market for their products will be interested to know that the American Society for Agricultural Engineering is to hold its 16th annual meeting at Planters Hotel, St. Louis, Mo., on December 27-28-29.

* * *

NATIONAL BUSINESS PROBLEMS DISCUSSED

The members of the National Conference of Business Paper Editors met with the officers and managers of the departments of the Chamber of Commerce of the United States on Wednesday afternoon, November 1, 1922.

The subjects discussed were:

1. Par Remittance for Checks.
2. Commercial Arbitration, American and International.
3. Business Conditions.
4. Immigration and Labor Supply.
5. Ship Subsidy.
6. The Rogers Bill.
7. Program for the Rome meeting of the International Chamber of Commerce.
8. New Building for the National Chamber in Washington.



Kiln at East Liverpool Brick Mfg. Co. on Full Fire. The Absence of Coal and Ashes is Very Noticeable.

How We Burn Face Brick with Oil

Saved Three Days in Burning Time
and Improved Quality of Our Ware

Harry T. Horwell

Secretary and General Manager, East Liverpool
(Ohio) Brick Mfg. Co.

OUR BURNING EQUIPMENT is one that was designed especially for the burning of clay products and is known as the volume air burning system. The oil is atomized mechanically and the air necessary to complete combustion is delivered from a volume air blower at a pressure of about $2\frac{1}{2}$ oz. at the burner.

The blower is directly connected to the ball-bearing motor and is so constructed that the fireman can change the amount of air delivered to the burners by operating a regulating valve on the inlet of the blower. This arrangement and the capacity of the blower is such that sufficient oxygen can be supplied by the blower to give a range of burning capacity at each burner of from one gallon per hour to 15 gallons per hour, but we have never required over 12 gallons per burner per hour to fire off our kilns.

Air Distributed Evenly to Burners

The outlet on the blower is connected to six-inch piping which connects to a four-inch air line around the kiln with a three-inch outlet at each burner. This arrangement of piping gives an equal amount of volume air at each burner and when our fireman increases the supply of air at the intake on the blower it will distribute evenly to each burner. This is quite an advantage in the distributing of the heat evenly thruout the kiln and it gives the fireman full control of all air introduced into the kiln.

The blower not only supplies sufficient air to complete combustion but on account of delivering it in volume, it starts circulation in the kiln when the burner is lit, overcoming the necessity of waiting for the natural drafts to take effect. This arrangement also enables us during the water smoking and oxidizing period to pass a large amount of moderately heated gases thru the kiln and this seems to carry away the moisture and carbon faster. The kiln as a consequence becomes heated up more evenly.

Long Flame Possible

Our burners are also fitted with a cone-shaped mixer where they are attached to the kiln and if we desire to do so can use air from this point also. This is very convenient and by working the mixer in connection with the blower, we can make a longer flame than is possible with a long flame coal and we can also create an oxidizing, neutral or reducing condition in the kiln any time we want it and can maintain it as long as desired.

The storage tank is 21,000-gallon capacity and is fitted with a steam coil to guard against the possibility of the oil becoming too heavy to pump. It is not placed under the ground but we believe it would be better to have it under ground as the oil could then be emptied from the tank car by gravity and if it were buried the oil after once being heated would retain the temperature longer.

We have a piston type steam pump connected up for pumping the oil out of the tank car into the tank but this pump is not satisfactory for supplying the oil to the kiln as it causes pulsation. For supplying the oil to the kiln, we have a non-pulsating rotary type pump which is fitted with duplex strainers, relief valve pressure gauge, and so forth. This gives a steady supply of clean oil at the burners making it possible to regulate them so that they will require no further attention until it is necessary to change the heat in the kiln.

Clean Oil Is Important

In my estimation clean oil heated to the proper temperature is of the greatest advantage in burning fuel oil. The oil is drawn from the tank by the motor driven pump and passes thru a superheater which is eight inches in diameter, six feet long and has an endless coil one inch in diameter on the inside. Exhaust steam is passed thru the heater and the temperature of the oil is regulated by a temperature regulating valve. The outlet from the super-heater is connected to the coil in the tank so that the cost of heating the oil amounts to virtually nothing.

From the heater the oil circulates around the kiln and there is an overflow line back to the tank. This is necessary in order to insure a uniform pressure at each burner and also shows another advantage as the oil coming back thru the overflow gradually heats the oil in the tank to the proper temperature. With this heater we can use any grade of oil, as low as ten gravity, and are at the present time using an 18 gravity oil which we find is the cheapest for our work. We have used 30, 26, 24, 22 and 20 deg. Baume gravity oils and prefer the heavier oil—first, because it is possible to make a longer flame with it than with the lighter oils and second, because an 18 gravity oil averages about eight pounds to the gallon and a 26 to 30 gravity oil about 7.4 pounds to the gallon.

Heavier Oil Is Cheaper

As a rule the 18 gravity oil is from one cent to one and a half cents cheaper per gallon in the initial cost and contains about 18,500 B. t. u. per gallon. Also 26 or 30 gravity oil contains about 19,000 B. t. u.

18,500 multiplied by 8 pounds per gallon equals	
per gallon	148,000 B. t. u.
19,000 multiplied by 7.4 pounds per gallon	
equals per gallon	140,600 B. t. u.

This makes in our favor, in addition to any advantage in price, a total of, per gallon..... 7,400 B. t. u.

To start our kiln we throw in the switch operating the pump and blower, and then light each of the mouths. As each burner has an individual oil and air control at the burner, when lighting we govern the supply of both oil and air right

The Hays School of Combustion, whose professors have studied fuel oil burning for boiler operation from every standpoint, lists the several advantages and disadvantages of steam and mechanical atomizers as follows. The comparisons are applicable to the installation of oil burning for kilns.

Steam Atomizers—Advantages:—

- (a) Lower initial cost of installation and equipment.
- (b) Simplicity of operation.
- (c) Wide variation in capacity per burner.
- (d) Equal boiler efficiencies with equal operating costs up to 175 per cent. rating. Operating costs used here do not include up-keep and maintenance.

Steam Atomizers—Disadvantages:—

- (a) Loss of steam (pounds of feed water).
- (b) Length and velocity of flame at high ratings which causes brick and tube troubles.
- (c) Inability, due partly to the above disadvantage, to reach boiler ratings obtained by the mechanical atomizer.
- (d) Limited number of burners that can be installed in any furnace. This is due to the method of admitting air for combustion and it naturally has an effect on the maximum possible boiler ratings obtainable.
- (e) Possibility of damage to furnace thru careless and inefficient operation. The flame length is much more flexible than is the case with the mechanical atomizer and can do a great deal of harm if handled carelessly.
- (f) Inability, at the present stage of development, to lend itself to efficient combustion with forced

draft. This is due to the method of admitting air for combustion and is a direct factor in the question of reaching high boiler ratings.

Mechanical Atomizers—Advantages:—

- (a) Equal boiler efficiencies at ratings up to 175 per cent.
- (b) Ability to reach ratings, in furnaces of equal volume, far above those that can be produced by steam atomizers. Ratings as high as 600 per cent. have been reached with mechanical atomizers under forced draft.
- (c) Lower flame velocity with less probability of damage to furnaces and tubes or boiler shells at high ratings.
- (d) Adaptability to forced draft.
- (e) Less concentration of heat—the flame is softer and more diffused.
- (f) Greatly increased number of burners that can be installed in any furnace. Due to the method of admitting air for combustion around the burners instead of underneath the burners as is the customary and most efficient method with steam atomizers.
- (g) No direct loss of steam for atomization.
- (h) Less liability to cause damage to furnaces or boilers thru careless or inefficient operation.

Mechanical Atomizers—Disadvantages:—

- (a) Considerably higher initial cost of equipment.
- (b) Much higher oil pressure required.
- (c) More attention required in operating the burner.
- (d) The equipment, in general, is more complicated than with the steam atomizer.

at the burner. Then after the fire box becomes warm we open the air regulating valve at the burner full and regulate the supply of air at all burners by the regulating valve on the intake of the blower. This does away with the necessity of regulating the air at each burner and gives us an even distribution of the heat in the kiln. It also shows a much more even firing product than steam or high pressure burners that I observed where the air has to be regulated by the fireman at each mouth and the natural drafts depended on to distribute the heat.

Oil Burning Requires Practice

Of course burning with oil is different than with coal and to obtain the utmost economy requires some practice. Burning clay products is becoming more scientific and calls for a higher class of men. Oil has helped us along this line be-



Storage Tank and Attachments. The Upright Pipe at Left Is the Heater. The Pumps and Steam Trap Are in Pit Near Tank.

cause after our fireman had given it a little study and realized the advantages possible by having complete control of the air and fuel delivered in the kiln, he apparently has taken a greater interest to bring a higher percentage of good brick from each kiln fired.

Our burners do not damage the bags of the kiln in any

way—in fact it shows quite a saving over coal in this respect. For our own satisfaction we built the bags out of our regular face brick, turning the face away from the fire and these brick were of the same color and quality when the kiln was finished. We could have shipped them if we so desired. This was due to the soft and diffused heat that we carry.

Oil Much Cheaper Than Gas

The distance from the end of our burner to the bag wall is 40 inches which gives a combustion chamber of that size. At present our bag walls are too low, causing short circuiting of the heat from the burner to the draft holes in the floor. This, however, can easily be overcome by raising the bag walls. This kiln was formerly equipped with natural gas and the last burn required 1,000,000 cu. ft. at 36 cents per thousand. This made an average cost of \$5.14 per thousand brick. We know that that figure is high, and it should be about \$3.40 per thousand. The high consumption was due to a great extent to the variation in the gas pressure.

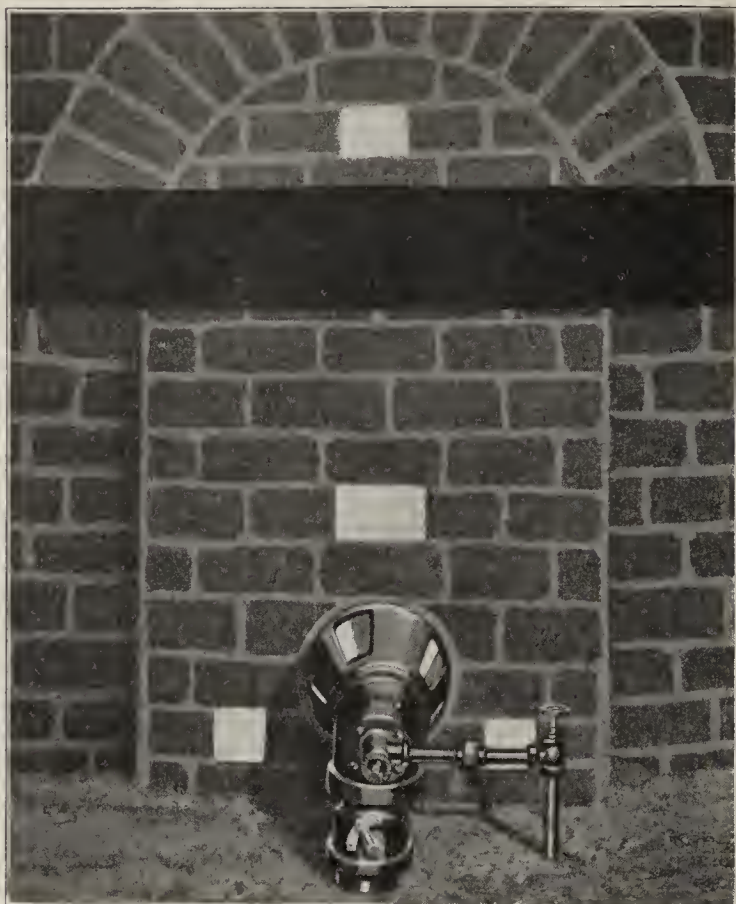
The average of three burns with oil gave us the following results:

Diameter of kiln,	30 feet.
Contents of kiln,	88,000 brick.
Fuel consumption,	5,604 gallons.
Price of oil delivered in tank,	4.1 cents per gallon.
Total cost of fuel.....	\$229.76
Total cost of power to operate blower and pump....	7.56

Total cost of fuel and power.....	\$237.32
Net cost per thousand brick for fuel and power.....	\$2.70
Average firing time,	six days and ten hours.
We fire to	2246 deg. F.

Brick Set Closer in Oil Fired Kiln

There are several features about these figures that should be explained. When firing this kiln with coal and depending on our natural drafts, we could not place over 75,000 brick in it, but due to the shortening of the bag wall, the capacity of the kiln was increased accordingly and on account of the cir-



Burner in Use at Kiln. The Oil Is Fed Thru Small Pipe at Right of Burner. Air Is Blown Thru Pipe at Bottom. Besides Control at Blower Air Can Be Regulated with Butterfly Valve in Pipe and with Cone Shaped Mixture Next to Brickwork. Oil Line Has an Angle Valve and Needle Valve for Regulation.

culuation of the heat due to the forced draft from the blower, the brick can be set closer. The burning time of this kiln with coal was 10 to 11 days. With oil it does not vary more than an hour or two on the different burns and shows a saving of over three days each time it is fired. This has increased our capacity accordingly.

The difference in time in reaching certain heats in the top and bottom center of the kiln is about six hours and the brick produced in the kiln are clean and evenly fired, both in color and hardness, all thru the kiln. As we have only five kilns and fire only one kiln at a time, the saving in labor is not as great in our plant as it would be in a plant where five or six kilns were fired at one time, as one man could easily take care of and fire six kilns at once with oil.

Oil Burns More No. 1 Brick

Of course we do not have the cost of the distribution of coal, removal of the ashes, or the wear and tear in the fire mouth which we had with coal. We are still firing some of our kilns with coal with a forced draft system, using steam for this purpose. This enables us to use regular run of mine coal of a cheap grade but we still have the cost of distribution of coal to the kilns, and removal of ashes. In addition the percentage of first quality brick from the oil fired kilns averages about 97 per cent., whereas it is often only 75 per cent. on the coal fired kiln.

With our method of burning fuel oil, we have no flashed brick. We can, however, create a neutral, oxidizing or reducing condition in the kiln at will. This point, we feel, should make our system of special interest to plants producing flashed or salt glazed ware. We believe that it would be easier to circulate the salt fumes to all parts of the kiln.

We would estimate that the approximate cost of an installation such as ours for a ten-kiln plant would run about \$1,000 per kiln. Ours cost slightly more than that figure, but of course our pump, heater and piping are so designed that we can add more kilns and that will reduce the cost per kiln.



Blower for Producing Volume Air for Combustion at Low Pressure. The Disc Valve on Side of Blower Controls the Amount of Air Entering Blower and Therefore the Kiln.

WANT MORE BRICKLAYER SCHOOLS

Urge upon manufacturer-members is being made by the Common Brick Manufacturers' Association of America, Cleveland, Ohio, to extend themselves in the establishment of bricklayer schools thruout the country.

As one aid toward reducing the shortage of bricklayers, the association is preparing to supply free copies of the book "How to Build and Estimate," which already is proving useful in this work. In addition, the association will send to any member a sheet of suggestions pointing the way toward establishing bricklayer schools.

Another help for manufacturers of common brick to gain more business is a new issue of syndicate matter on brick house construction, which includes photographs of houses and plans for the same. Newspapers are using this material, which costs them nothing but the space it takes in the paper, and not a few of the dailies have seen in it a hint toward added business for themselves.



FREIGHT SITUATION HAMPERS SOUTH

As a whole the southeastern plants seem to be sold ahead some 30 to 40 days, with some manufacturers stating they have orders booked now 60 days ahead. As a result all plants are going at capacity and the only cloud on the horizon is the freight situation. Improvement in this of late has been at a pace which indicates that an almost normal car supply should be available by the early part of December, manufacturers in this section believe.

Some manufacturers seem to be of the opinion that 1923 is going to usher in a period of inflation again similar to that immediately following the war, but believe that it will be on a sounder basis and will not be followed by a serious period of deflation such as has been experienced the past two years.

The price tendency is stable for practically all brick, and a majority of the manufacturers in the southeastern section are looking for increased brick prices within the next few weeks.

Cleaning House of Useless Tile Sizes

Simplification of Shapes and Standardization of Weights to Be Attempted by Hollow Tile Industry—Manufacturers' Cooperation Necessary

STRENUOUS EFFORTS are being made by the Hollow Building Tile Association to gain sufficient information to form the basis for a revision of hollow tile sizes and standardization of weights. This work is going on in cooperation with the United States Department of Commerce, Division of Simplified Practice which is extending its work of simplification into practically all branches of industry.

In the hollow tile industry it is proposed to do two things: To eliminate all unnecessary sizes and shapes and to standardize the weights of the varieties determined to be essential. These are problems which can only be worked out with the help of the manufacturers themselves. In order to obtain information to form the basis of the discussions which will lead to the adoption of standard sizes and weights, the Hollow Building Tile Association has sent questionnaires to some 375 manufacturers.

Information That Must Be Obtained

- With the help of this questionnaire it is hoped to find out:
1. What are the broad classes of hollow tile? That is, commonly accepted means of identification such as load-bearing tile, non-loadbearing, partition, and so forth.
 2. What specific articles are included in each of these broad classes? Under this question are included trade names or definitions, with the different sizes and varieties covered by each.
 3. What are the various sizes now being made of each of these articles? Also dimensions, weight, thickness of shells and webs, number of cells and other essential features.
 4. What has been the annual production of each of the sizes enumerated under question three for the years 1915, 1916, 1919 and 1921?
 5. From analysis of the foregoing facts, what sizes of each article in each class do you suggest for elimination?
 6. What association, groups or individuals in the industry from producer to consumer will favor these eliminations?
 7. What elements will oppose these eliminations?
 8. What specific advantages, benefits and economies will the industry obtain thru these eliminations?

To Standardize Varieties and Weights

With the information from this questionnaire as a basis a conference of manufacturers, engineers, architects and men

should be the standard of measurement rather than the thickness of shells and webs. There is now a provision in the building code of the Hollow Building Tile Association which calls for a ratio of 45 per cent. walls and webs and 55 per cent. spaces. In other words the cells in the tile must not take up a space greater than 55 per cent. of the tile itself. This provision is a good one since it regulates absolutely the thickness of the walls and webs, but it is open to one objection and that is, it is not as easy to measure the thickness of the walls of a tile, figure the cell space and determine whether their ratio is correct as it is to place a tile on a scale to see if it will weigh 15 pounds or 17 pounds, or whatever the requirements are.

Weight Is Fair Basis of Standardization

Determination of the proper weight for the various sizes of tile will be one of the hard nuts which will have to be cracked. At first thought it would seem that the establishing of an arbitrary figure as standard weight for a certain sized tile would work a hardship on those manufacturers which are producing a tile of greater strength than their competitor. It must be borne in mind, however, that the weight which will be adopted will be ample to cover the minimum strength test requirements of the American Society for Testing Materials, but the manufacturer who produces a tile which has strength greatly in excess of the minimum requirements will find a greater range of usefulness for his tile than his competitor who makes an inferior product.

The greatest benefits to be derived from the standardization of the weights of tiles will be to relieve the manufacturer of much of the worry of unfair competition. There are conditions existing at present where manufacturers in certain districts have cut the weight of 5x8x12 hollow block to 15 pounds in order to compete successfully with their competitor who was doing the same. Where such conditions exist manufacturers and public both suffer and no one is benefited.

Excess Sizes to Be Thrown Out

Elimination of excess sizes will be the other objective of the hollow tile simplification program. It is hard to say just what can be done along these lines. The reports of individual manufacturers will determine which sizes and shapes are of no consequence, by the extent of their use. There are many manufacturers who have their own little "pets," special shapes or sizes around which they have built selling arguments and which they believe fill definite and distinct requirements. It will be hard to bring these manufacturers to realize that their main interests lie in the elimination of these odds and ends and in the production of as few sizes and shapes as are necessary to fill all the uses to which hollow tile is put.

Clay Industry in the Front

The paving brick industry offers indisputable proof that this can be done. In this industry some 66 varieties of brick were manufactured a year ago. This number has been reduced to seven standard varieties and it has been found that these seven varieties will fill the requirements of every problem of highway building yet devised.

In connection with the problem of simplified practice in industry it is gratifying to know that the clay industry has

SIMPLIFIED PRACTICE WILL DECREASE INCREASE

Stocks	Turnover
Production Costs	Stability of Employment
Selling Expenses	Promptness of Delivery
Misunderstandings	Foreign Commerce
All Costs to User (including initial accessory and maintenance costs).	Quality of Product
	Profit to Producer, Distributor and User.

from the Department of Commerce will decide on the number of sizes and shapes necessary and will determine a standard weight for each. The matter of standard weights will be of the utmost importance and offers the greatest opportunity for benefit to the manufacturer and user of tile.

It is the general opinion among manufacturers that weight

been one of the leaders in the movement and has been one of the first industries to make decided efforts to clean house. Thru the efforts of the National Paving Brick Manufacturers' Association that industry has fallen in line; the Common Brick Manufacturers' Association has standardized the size of common brick; the Refractories Manufacturers' Association standardized their shapes and sizes several years ago; the American Face Brick Association is now working on a standard size for face brick, and the Hollow Building Tile Association is working on standardization and simplification of hollow tile. The members of these several associations that have adopted simplification and standardization have profited individually and collectively. It is reasonable, therefore, to predict that hollow tile manufacturers will also greatly benefit by standardization and simplification, and every questionnaire should be filled out and returned, even tho the plant considers only its own individual interest.

The Hollow Building Tile Association, in order to be successful in its endeavors must get the necessary information from the manufacturers of hollow tile themselves. The questionnaire sent out for data must be filled out and returned to provide information with which to work. Unless at least 50 per cent. of the manufacturers in the industry give the information requested the work of simplification and standardization can not go ahead. If the clay industry hopes to maintain its position in the fore of this movement, the work of the Hollow Building Tile Association must be supported.

Benefits of Simplification

Simplification brings great benefits both to the producer and to the consumer. It is a comparatively new thought, however, and many business men do not have a clear idea of the results to be achieved, or how they will profit by the nation-wide program of simplified practice. For this reason the Fabricated Production Department of the Department of Commerce has outlined the profits which will result from simplified practice, as follows:

Gains to the Manufacturer

1. Less capital tied up in
 - (a) Raw materials,
 - (b) Semi-finished stock,
 - (c) Finished stock,
 - (d) Jigs, dies, templates and special machinery,
 - (e) Storage floor space,
 - (f) Repair parts.
2. More economical manufacture thru
 - (a) Larger units of production; reduced number of manufacturing units,
 - (b) Longer runs, less frequent change,
 - (c) Higher rates of individual production,
 - (d) Accurate and proper estimating for production,
 - (e) More effective stock control,
 - (f) Better and more simplified inspection,
 - (g) Less idle equipment; reduced amount of equipment,
 - (h) Greater ease in securing raw materials, and conserving raw products,
 - (i) Cheaper handling of stock,
 - (j) Reduced clerical overhead,
 - (k) Simplified and more accurate costing system,
 - (l) Elimination of waste in experimentation and design,
 - (m) Standardized material inventories.
3. More efficient labor due to
 - (a) Making training of employees more simple,
 - (b) Better earnings, thru increased individual production made possible by longer runs,
 - (c) Happier and more contented workmen,
 - (d) Skill increased by repetitive process,
 - (e) Less labor idle from preventable causes,
 - (f) More permanent employment as contrasted to present seasonal employment,

- (g) Less difficulty in getting help.
4. Better service to the trade in
 - (a) Better quality of product,
 - (b) More prompt delivery,
 - (c) Decreased quantity of packing required,
 - (d) Fewer packages broken in transit,
 - (e) Less chance of errors in shipment,
 - (f) Less obsolete material.
5. More efficient sales force.
6. Increased rate of turnover.
7. Intensified sales momentum.
8. Easier financing.
9. Fewer factory shutdowns.
10. Compels attention to individuality in those features where there should be individuality, by preventing attempts at individuality in those features where individuality is superficial and useless and where standardization and quality should prevail.
11. Earlier plans and schedules.
12. Decrease in number of production processes.

Gains to the Consumer

1. Better prices than would otherwise be possible.
2. Better quality of product thru ability of manufacturer to concentrate on better design and thru the reduction of manufacturing expense.
3. Better service on
 - (a) Complete products,
 - (b) Repair parts,
 - (c) Prompt deliveries.

Economic and Industrial Significance

The important role which standardization plays in industrial evolution is not generally appreciated. Following are significant aspects of standardization, when carried out on a sound engineering basis:

1. It enables buyer and seller to speak the same language, and makes it possible to compel competitive sellers to do likewise.
2. Better quality of product thru ability of manufacturer to concentrate on better design and thru the reduction of manufacturing expense.
3. It lowers unit cost to the public by making mass production possible, as has been so strikingly shown in the unification of incandescent lamps and automobiles.
4. By simplifying the carrying of stocks, it makes deliveries quicker and prices lower.
5. It decreases litigation and other factors tending to disorganize industry, the burden of which ultimately falls upon the public.
6. It eliminates indecision both in production and utilization,—a prolific cause of inefficiency and waste.
7. It stabilizes production and employment, by broadening the possible market, and by making it safe for the manufacturer to accumulate stock during periods of slack orders to an extent which would not be safe with an unstandardized product.
8. By focusing on essentials, it decreases selling expense, one of the serious problems of our economic system.
9. By concentrating on fewer lines, it enables more thought and energy to be put into designs, so that they will be more efficient and economical.



OFFERS COURSE IN HIGHWAY ENGINEERING AND HIGHWAY TRANSPORT

University of Michigan has announced the schedule of the 1922-1923 Graduate Short Period Courses in Highway Engineering and Highway Transport which will be offered during the winter period, December, 1922, to March, 1923. Attendance at these courses has steadily increased.

C. B. M. A. PROMOTING COST SYSTEM

As an outcome of inquiries made by Charles A. Bowen, assistant to the president, and suggestions offered by members, a new cost accounting system, which will be distributed to manufacturers in a series of lessons, has been put into effect by the Common Brick Manufacturers' Association, Cleveland, Ohio. The first lesson already has gone out to those who have manifested a desire to take up the system. The work is under the direction of Harry W. Conway.

The system, of course, contains the all essential element, pointing the way to what the real cost to the producer is and in addition will go far toward eliminating the price cutting evil by enlightening the manufacturer as to his costs.

It is planned to distribute these lessons weekly, so that the system will be acquired gradually by the manufacturer and his organization.

Some of the features to be taken up will be:

Preface.	Purchase.
How to Install a System.	Production.
Assets and Liabilities.	Shipments.
Income and Expenses.	Kiln Records.
Surplus and Its Adjustments.	Repairs.
Clay or Shale.	Insurance.
Mining.	Depreciation.
Making and Drying.	Taxes.
Setting.	Interest.
Burning.	Overhead Expense.
Kiln Work.	Cash.
Time Keeping.	Inventories.
Payroll.	Monthly Reports.

The series will be free to members. Those who will require special assistance, will be given special help personally by Mr. Conway at a nominal charge.

* * *

DISCUSS IMMIGRATION PROBLEM

The manager of the Civic Development Department of the Chamber of Commerce of the United States advised the National Conference of Business Paper Editors that a special committee of the National Chamber of Commerce had given long and careful consideration to the question of immigration and labor supply and that there was now being developed a

report for the consideration of the Board of Directors. The members of the conference expressed their views on certain questions and the manager of the Civic Development Department advised the conference that he would be glad to have from any member of the conference suggestions and comments regarding the questions involved in this important matter.

Conventions in Prospect

December 5, 6 and 7—American Face Brick Association, West Baden Springs Hotel, West Baden, Ind.

December 10—United States Potters' Association, Washington, D. C. (Probably).

December 12 and 13—National Paving Brick Manufacturers' Association, Cleveland, Ohio.

December 12—New Jersey Clay Workers' Association and Eastern Section of the American Ceramic Society, Ceramic Building, Rutgers College, New Brunswick, N. J.

January 24, 25 and 26—Canadian National Clay Products Association and Western Ontario Clayworkers' Association, Hotel Connaught, Hamilton, Ont.

January—Kentucky Clay Products Association, Louisville, Ky.

February 5, 6 and 7—Common Brick Manufacturers' Association, Hotel Winton, Cleveland, Ohio.

February 8, 9 and 10—National Brick Manufacturers' Association, Hotel Winton, Cleveland, Ohio.

February 12, 13, 14, 15, 16 and 17—American Ceramic Society, William Penn Hotel, Pittsburgh, Pa.

BELT 60 INCHES WIDE IN USE 30 YEARS

Good care has greatly assisted in prolonging the life of the leather belt which forms the main drive at the plant of the American Vitrified Products Co. at Barberton, Ohio. This belt is 60 inches wide, of triple thickness and has been in use for 30 years. The boilers and engine are each 700 h. p. and this belt transmits that amount of power.

This plant is said to be the largest plant in the world devoted to the manufacture of sewer pipe. The building is 728 feet long, 80 feet wide and four stories in height. Four steam presses are in constant operation, and there are three other presses at the plant. One press makes nothing but four and six inch sewer pipe. The four inch are made at the rate of 650 to 700 pieces per hour. At this press there is a large wheel about 12 feet in diameter. It is placed close to the press so that the offbearers do not move their feet at all. They take the ware from the press and place it on the wheel. This is necessary on account of the speed of the production. Another gang of men revolve the wheel and take the pipe off of it and place them on trucks for movement to the drying floor. This plant has 55 down-draft kilns. The plant has been built for 30 years. It is a fine example of the economy of building permanently at the start. Few other plants can show as good a record. This plant turns out 400 tons of sewer pipe daily.



The Prince of Wales is here shown standing on a very unusual brick bridge in India, one of a number built by Col. Haviland to enable troops to cross the numerous water courses surrounding Shringapatnam, the historic capital of Tipu Sultan.—Courtesy National Builder.

In Commemoration of

An Expression of Appreciation to the Clay Products Industry

Brick and Clay Record desires to express its appreciation in some concrete way, of the 30 years of splendid support and liberal cooperation received from clay products manufacturers all over the world. Our 30th anniversary will occur in 1923. To appropriately celebrate the occasion of this long period of faith and esteem on the part of the readers of our publication, we take this opportunity to announce a 30th anniversary prize slogan contest, which is open without strings or qualifications of any sort to every reader of Brick and Clay Record.

Why has Brick and Clay Record reached Such High Esteem in the Clay Industry?

\$200 in cash will be paid to the successful contributors of the best slogans, mottoes, or epigrams which express in the briefest, clearest, truest and most ingenious language the reason or reasons why, in the judgment of the writer, Brick and Clay Record is the leading champion and medium of the clay products manufacturer.

Reason Why Slogan was Chosen Must Accompany Contribution

There is no restriction whatever as to the number of slogans which any contestant may enter. In fact, the more that are entered by any one contestant, the more chance he may have securing one of the prizes. Each slogan entered, however, should be accompanied by a brief statement which does not need to exceed 100 words, stating in the opinion of the contributor, why he thinks Brick and Clay Record fulfills the requirements necessary to measure up to the standard of its excellence.

Just One Caution; We Want Actual, Personal Convic- tions Only

In this contest Brick and Clay Record desires the cooperation of every clay products manufacturer, strictly on the merits of the journal. We have no desire for mere puffs or flattery, and we invite only the contribution of such contestants as can speak from personal acquaintance and experience with Brick and Clay Record. We must insist that we want every reason, given as above requested, to be an actual, bona fide expression of personal or direct observation on the part of the contestant entering his slogan.

Sample Slogans Taken From Our Editorial Corre- spondence— Write Yours and Send It in Today

For the benefit of all who are interested in entering this prize competition, we offer a few impromptu slogans to illustrate the idea. These slogans are suggested by statements contained in letters received from subscribers to Brick and Clay Record. For instance: "Brick and Clay Record, the assistant manager of every progressive clay manufacturer."

"Champion of Highest Quality, Lower Costs and Larger Sales."

"Stands and Fights for all that is Fair for the Clay Manufacturer."

"Blazes the Way to New Information, More Constructive Policies and a Higher Standard of Business Service."

"Exponent of the Clay Products Industry."

"Always Striving to Increase Profits and Decrease Grief in the Industry."

"Brick and Clay Record—A Clay Manufacturer's Tonic."

"The Clay Products Industry's Guiding Spirit."

"The Industry's Inspirational Counsellor."

For Your Help in Preparing Slogans

For the more particular information of readers who desire to take part in the 30th anniversary prize contest, we epitomize herewith briefly some of the reasons why Brick and Clay Record, with the splendid cooperation of its whole list of reader adherents, has been recognized as the leading paper of the entire manufacturing world that it serves. Brick and Clay Record, from its first issue has been a paper with a purpose—the one clean cut, thoro going, sincere idea of giving the clay manufacturer an absolutely free opinion and fearless medium for every need and requirement of their business—a medium no money, nor individual, nor group of them could ever buy, frighten or intimidate. Above all else, this is the one vital reason for the existence of Brick and Clay Record.

Thirtieth Anniversary

It would be easy to fill an entire issue with details of the reasons why Brick and Clay Record is today recognized as the clay products manufacturers' indispensable friend and adviser, but briefly, a few of the points may be summed up in a sentence apiece.

Brick and Clay Record was first to recognize the lack of proper merchandising methods in the clay products industry and has outlined better distribution ideas for its readers.

It has always fought for and advocated wide publicity for all clay products against silence which would permit great inroads in its markets by substitute materials.

Wherever an appropriate field existed for a trade association Brick and Clay Record has encouraged the formation of such associations even to the extent of using its own funds to assist organization.

The disreputable practice of price cutting as well as profiteering has been vigorously discouraged.

Brick and Clay Record has always admonished manufacturers that substitute materials would take away their markets if cost and, therefore, prices were not kept low—to this end it has persistently inspired plant betterments.

Editorial representatives of Brick and Clay Record have visited the most distant parts of the country to investigate and give light to the latest developments in machinery, equipment and manufacturing methods.

Cooperation in the establishment of standardized shapes and sizes has always been whole-heartedly and liberally given.

Brick and Clay Record has always discouraged the construction of new plants at points where neither material nor market existed.

To eliminate as much as possible the enormous mortality rate of eleven per cent in the clay industry, the dire need for knowing costs has been urged consistently and good cost systems described in its columns.

As a distinctive assistance, aside from its regular services, Brick and Clay Record has counselled and informed manufacturers on thousands of technical, sales, accounting, legislative and other important problems and policies.

More important than all else Brick and Clay Record never has been nor ever will be satisfied with past laurels. What it has achieved for the industry, has simply been its every day business, done from the heart with all the punch and earnestness it could command—and its face is turned forward and upward with a confidence that it will find just as much to do and just as hard battles to fight on behalf of the manufacturer on the morrow as it has found in all the yesterdays now past.

In reviewing what Brick and Clay Record stands for and what it has tried to do, we are proud to recognize the very great help and real support and cooperation which has enabled us to make this record. The names of all those whose highest counsel and good will have combined to put us in highest esteem would be synonymous with a register of the nation's progressive clay manufacturers and machinery supply firms.

The contest closes in January and the announcement of the winners will be made about the time of the Common Brick Manufacturers' Association's Convention in the early part of February. All contributions will be referred to the Board of Judges, the members of which will be announced later. The slogans should be accompanied by the names and addresses of authors. Eight prizes will be awarded as follows:

For the best slogan, prize of \$100; for the second, \$50; for the third, \$25; and five additional prizes of \$5 each. In the case of a tie equal prizes will be awarded to all having the same mark. The time is short—send in your slogans immediately to the Slogan Editor, Brick and Clay Record, 407 South Dearborn St., Chicago.

**Ten of the Many
Stands Taken by
Brick and Clay
Record**

**These are Points
You Should Know**

**To Improve Our
Service Even More
is Our Aim**

**We Recognize and
Appreciate the Aid
and Cooperation
from the Industry**

**Time is Short—
Send in Your Slogan
Immediately—
Judges will be
Announced Soon**

WANT NEW ROOFING MATERIAL

Considerable interest has been manifested recently in East and West Africa in the local production of roofing tiles to take the place of corrugated iron, and of brick for general building purposes. In this connection a number of samples of clay have been received at Imperial Institute of England from Nigeria, Sierra Leone, Uganda and Kenya, and technical trials have been carried out in order to determine the most suitable materials for use, and the best conditions of working. Special interest attaches to the results obtained with diatomite containing a certain proportion of clay from Kenya as this material furnished tiles which are much lighter than ordinary roofing tiles. There are extensive deposits of this diatomite in Kenya which are not at present worked.

COLORADO MANUFACTURERS ORGANIZE

At a meeting held at Boulder, Colo., October 25, at which were present manufacturers representing 15 brick plants in the state of Colorado, the Colorado Brick Manufacturers' Association was organized. The objects of the new organization will be primarily to advance the brick industry in Colorado, to obtain adjustment of present freight rates, to standardize the sizes and grades of Colorado brick and to oppose legislation which will work a hardship on the brick manufacturer. Charles A. Bowen, assistant to the secretary of the Common Brick Manufacturers Association, was the principal speaker at the organization meeting. The state association will be affiliated with the national.

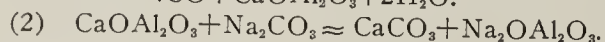
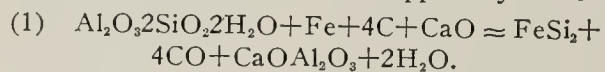


Possibilities of Producing Alumina from Clay

THE FOLLOWING is a report of the experiments made by Clyde E. Williams, metallurgist and superintendent, Northwest Experiment Station, Bureau of Mines, and Clarence E. Simms, electrometallurgist, Bureau of Mines, to recover alumina from clay according to the process patented by Paul Miguet.

"In recent years much interest has been centered on the possibility of producing alumina from clay, and proposed methods for the recovery of alumina are appearing constantly in parent literature. As a good grade of clay contains from 30 to 40 per cent. of alumina, the prospect of recovering it is alluring, altho obviously difficult.

"A patent typical of many projected thermal processes is that of Paul Miguet (U. S. Patent No. 1,376,563) entitled 'Process for the preparation of pure alkaline aluminates.' He proposes to prepare alkaline aluminate by fusing clay, lime, and scrap iron with a reducing agent in the electric furnace, thereby reducing the silica and forming calcium aluminate and ferrosilicon. The calcium aluminate, being lighter, would float on top substantially free from foreign oxides. It could then be tapped off, cooled, and later crushed and leached with sodium carbonate solution to form, by double decomposition, sodium aluminate, and calcium carbonate. The former is soluble and yields readily aluminum hydroxide. The ferrosilicon would be recovered as such and sold at a profit. The reactions are supposedly as follows:



"So many reactions similar to the above have been proposed, and it is so popularly believed that alumina can be obtained from clay by fusion, that the Northwest Experiment Station of the Bureau of Mines at Seattle, Wash., undertook to investigate the Miguet process.

Use Clay of High Alumina Content

"The tests were carried out in a carbon-lined pit furnace of the Girod type, having a tap hole to remove the fused material. Clay containing 38 per cent. alumina, pure air-slaked lime, steel turnings, and gas-retort carbon were used. These materials were finely ground, intimately mixed, wetted, and dried in lumps to avoid dust.

"In the first tests the charges were made up with clay, lime, iron, and carbon in theoretical proportions according to the Miguet patent. The charge melted down readily and when melted was tapped. The analysis showed only a slight reduction of silica, and it was thought that possibly insufficient time had been allowed for reduction. The test was therefore repeated, the charge being held molten for a considerable time before tapping. No increase was noted in the amount

of silica reduced. When the product was crushed and leached with a hot concentrated solution of sodium carbonate, only a trace of alumina and fully as much ferrous iron was found in solution.

Alumina Actually Produced

"When the proportion of lime was increased, it merely increased the melting point and gave no better product. In these first tests an effort was made to keep within the limits of commercial practicability, but having failed to obtain any favorable results, these restrictions were cast aside and tests were made to determine what was technically possible. The proportion of lime, carbon, and iron to clay was increased to speed up their action on the clay, and the charge after fusion was heated to 1,800 deg. C. and held for 30 minutes. Still results were unsatisfactory. A charge was then made up with carbon three times and iron twice the theoretical quantity. The purpose was to subject the charge to the most intense reducing conditions possible, and silica is known to reduce more readily in the presence of iron. The charge was melted with the furnace over powered to such an extent that dense fumes arose. The product obtained was black and stony—hard enough to scratch glass easily. On examination, it was found to contain carbides of calcium, aluminum, and silicon, sillimanite, and quantities of a glassy substance. The analysis showed that about 40 per cent. of the silicon had been reduced and alloyed with the iron. The product of this final fusion, when leached with sodium carbonate, gave a recovery of about 30 per cent. of the alumina. This alumina produced contained 0.6 per cent. SiO_2 .

Process Not Commercially Practicable

"The fact that alumina was actually produced gives some small basis for the claims of the patent, but the prospects of its successful applications are extremely poor. In the first place, to produce alumina by the method of the most favorable test, the cost of the material alone would be more than \$300 per ton, as the minimum figure. Moreover, there is no proof that calcium aluminate was formed, because, with so much carbide present, it is just as likely that the sodium aluminate obtained was formed by the decomposition of aluminum carbide and its subsequent solution in the sodium carbonate. It is certain, too, that silica is not alone in being acted on by the carbon, but that all the other oxides will also be reduced in varying degrees."—Reports of Investigations, U. S. Bureau of Mines.



Read the particulars of the prize slogan contest on pages 718 and 719. If you have a good idea you may win \$100.

FINE CERAMIC MANUFACTURE



A Department Devoted to Practical Problems in the Manufacture of Higher Grade Ceramic Products Such as Whiteware, Including Electrical Porcelain, Floor and Wall Tile, Sanitary Ware, etc., as Well as Stoneware, Terra Cotta, Special Refractories and Other Articles Where High Grade Clays Are Employed in Their Fabrication.

PRODUCTION OF FELDSPAR IN NEW* HAMPSHIRE

FELDSPAR was occasionally produced some years ago in small quantities in New Hampshire, but the state had not been considered a producer of feldspar until 1921. In the spring of that year, the Keene Mica Products Co. of Keene, N. H., began in a small way the production of feldspar from their property in Gilsum, N. H., which had long been operated as a mica mine. The purity of the feldspar at once attracted favorable attention, and the production of crude ore rapidly increased. Early in 1922, a new company, the Golding-Keene Co., was formed to grind the feldspar, and the construction of a mill at Keene was begun. About the middle of June, 1922, the first unit of the mill was completed, and in a few days grinding on a commercial basis was started. This mill embodied the suggestions given in a recent report on the feldspar industry** by the Bureau of Mines, and so far the operation of the mill has been entirely satisfactory.

Deposit of Feldspar at Keene

The feldspar deposit is located in Cheshire County in the southern edge of the town of Alstead just across the line from Gilsum, about 11½ miles by road north of the mill at Keene.

The ore body stands nearly vertical between walls of mica schist. Between the feldspar body and the schist walls on each side occurs the mica for which the deposit was opened. The width of the pegmatite dike varies from 40 to about 200 feet. The total depth has not been proved, but mica workings to a depth of more than 200 feet showed no apparent change in the nature of the deposit. Mica workings have also been extended over a length of 750 to 1,000 feet along the vein, with no change in the deposit indicated. Thus a large tonnage of ore seems reasonably assured.

Impurities are Few

The feldspar is pure white, and shows little or no evidence of alteration. It occurs in large crystals and masses together with relatively small quantities of coarsely crystallized quartz. There is little or no graphic granite or intergrowth of feldspar and quartz. The problem of making pure or No. 1 grade spar by selective mining and sorting is thus comparatively simple.

Aside from the small quartz content, there are few im-

*Editor's Note—This investigation of the feldspar quarries in New Hampshire was made by Raymond B. Ladoo, Mineral Technologist, U. S. Bureau of Mines.

**Ladoo, R. B., Conditions in the Feldspar Industry, Bureau of Mines Reports of Investigations, Serial No. 2311, January, 1922.

purities. Finely granular muscovite mica occasionally occurs but it can be sorted out easily. Near the walls the feldspar is usually less pure, and sometimes contains a little biotite, rarely garnet, tourmaline, and beryl. This wall rock is commonly left standing in the quarry. No biotite, tourmaline, garnet, or beryl was noted in the mineable rock. The quality of the feldspar with respect to injurious impurities is unusually good.

Analysis of both the No. 1 and No. 2 grades of spar, as given by the Golding-Keene Co., are as follows:

	"Puritan" or No. 1 Grade	"Keene" or No. 2 Grade
Silica (SiO ₂)	66.45	69.59*
Alumina (Al ₂ O ₃)	19.45	16.99
Iron Oxide (Fe ₂ O ₃)	0.07	0.09
Lime (CaO)		0.65
Magnesia (MgO)	0.11	0.27
Potash (K ₂ O)	11.04	10.20
Soda (Na ₂ O)	2.75	1.68
Ignition loss (H ₂ O)	0.15	0.70
Total	100.02	100.17

*Corresponds to about 17 per cent. free quartz.

From the examinations of the deposit and from analyses received it seems that the grade and quality of the feldspar in different parts of the quarry are approximately uniform.

Method of Mining

The method of mining in use at the time of the last examination (June, 1922) was but a makeshift adopted at the opening of the deposit, in order to obtain quickly a large production. The installation of new machinery and equipment was under way, and new methods of mining and handling the ore are soon to be adopted. At present the feldspar is obtained from a rectangular pit about 65 feet square and 100 feet deep. The ore is drilled with compressed air hammer drills on columns or tripods, and is shot down in low benches. The large blocks are then broken up by sledging or shooting. The feldspar is loaded with forks into large pans, holding about one ton each, and hoisted by derricks to the surface where it is either dumped into waiting motor trucks or into a loading bin.

Waste and the finely broken spar that passes between the tines of the forks are loaded separately into pans, hoisted, and dumped; the waste is dumped on a waste pile and the partly broken spar on a special dump for future recovery. The better the grade of the feldspar, the better is its cleavage and, consequently, the greater the loss in the fines by the present system. Little real sorting is necessary, and no cobbing is done. At present a gross output of about 4½ tons per man per day is obtained, counting all the men employed in any way in the production of feldspar. An output of 100 to 120 tons per day has recently been maintained.

New Methods to be Adopted

The new methods which will soon be used were outlined by the company as follows:



These Two Views Show the Details of the New Leading Bins at a Feldspar Quarry Near Keene, N. H. These Are Only Some of the Improvements Being Made in the New Hampshire Feldspar Mines.



Mining of Feldspar in New Hampshire has Only Recently Been Developed to an Extent Where the State Has Become an Important Producer of This Mineral. Modern Ideas Are Rapidly Supplanting the Old Methods in the Mining of this Important Mineral.

A new quarry will be started to the east of the present workings. An inclined shaft will be sunk in the vein going down along the strike, at a dip of about 30 deg., to a depth of 200 feet vertically. At the 100 and 200 foot levels, drifts will be driven from the shaft along the vein. Then beginning at the shaft the feldspar will be drilled and shot down in benches, and the mine run rock hoisted in cars. The cars will be trammed around to a system of sorting and loading bins at the road. Here the rock will be dumped over six grizzlies or bar screens with eight-inch openings. The coarse waste will be sorted out, and the spar will be sledged until it all passes thru into six bins holding four to five tons each. From these small bins the ore will be drawn off, thru gates, over slotted screens, with 1 by 3 inch openings, set at a low angle. Waste will again be sorted out from the oversize. The fines will pass into small bins and thence by cars to a fines dump for later treatment and use. The oversize clean spar will then be distributed over large loading bins, which have a total capacity of about 275 tons. Separate bins are provided for No. 1 and No. 2 grades.

It is further contemplated to open one section of the deposit as an underground mine, which can be worked in bad weather, especially in the winter, in order to avoid interruptions to steady production.

Equipment in Use

The equipment in use at present and that on the ground ready for installation includes a 250 h. p. boiler; a large duplex two-stage air compressor; a drill-sharpening shop with a mechanically operated drill sharpener; and an oil-fired forge. Besides this equipment, numerous derricks, hoists, air drills, and pumps are used in the mica mining operations that are still being conducted. When the new installation is completed, a production of 200 to 250 tons per day is expected.

Haulage of Ore to the Mill

During the winter of 1921-22, it was possible to haul the material by truck almost without interruption, but this record probably can not be attained every winter. At present, in order to guard against delays in haulage, it is planned to

build up a stock pile at the mill. Later it is planned to build a narrow-gage tram road or aerial tramway from the mine at least to the point where the macadamized road begins.

Milling of Feldspar Ore

The present mill is not to be considered as final either as to arrangement or capacity. Since a rather new and, as yet, little used (for feldspar) method of milling is to be followed, it seemed best to build but one unit at first, and not to install auxiliary equipment, such as dryers, until later.

The crude ore is unloaded on the floor of the mill and is shoveled into a 9 by 16 inch manganese steel jaw crusher, of a special type, which in one operation will crush large lumps to about $\frac{3}{8}$ -inch size. The Hardinge mill is lined with silex blocks and is charged with about six tons of flint pebbles ranging in sizes from two to five inches. The capacity of the jaw crusher is several times the present grinding capacity.

With this mill a very finely ground product could be made uniformly and a good output maintained. The product averaged 99½ to 99¾ per cent. thru a 140-mesh, and 90 to 92 per cent. thru a 300-mesh screen. It was very noticeable that even the small amount of oversize was very finely and uniformly ground, nearly all passing a 120-mesh screen.

When the new mining and sorting system is completed and in operation so that the ore is fully sorted before reaching the mill, it is planned to dump the incoming crude ore into an elevated bin in the mill building and feed the crusher by gravity from the bin. As soon as the present mill unit has been tested thoroly and its possibilities fully developed, the company plans to install a dryer, additional grinding, and air-separation equipment.

* * *

ENGLISH POTTERS REDUCE PRICES

English pottery and china manufacturers have well defined plans to take advantage of the situation in the pottery trade as it now exists in the United States, and as a result, instead of reducing their selling prices effective March, 1923, as had been contemplated, a reduction of ten per cent. has been announced as effective immediately.

It is true that not much of the reduced price merchandise will reach American shores in time for the current holiday trade, but American importers will exert every possible effort to book a large volume of business for early delivery in 1923.

Commenting upon the new reduced selling list of English ware, the Staffordshire Sentinel under date of October 21, copies of which have just been received, observes:

"The English China Manufacturers' Association has revised the selling prices of the cheaper grades of china, involving a reduction of approximately ten per cent. This has been effected by an alteration of base prices.

"The reduction has been made with a view to securing the maximum amount of business in export markets for the autumn and early spring. This is a reduction which it had been anticipated would have been made next March, but, owing to the exigencies of overseas trade, the revision could not be delayed.

"Next March, it was generally agreed, would have been too late to secure export business which is urgently required to keep factories going and operatives employed. The reduction applies to home market also, but it has been made with the particular object of inducing overseas business at the time when foreign and colonial buyers are placing orders.

"In the industry the decision is regarded as a bold step to take at this juncture, since, as indicated, the reduction was intended to be made next March and economies in the cost of production to date do not warrant lower selling prices at present.

"It is hoped, however, that results will justify the step taken, and that workpeople on short time will benefit by improved employment."

Buyers of American dinnerware lines who have been in the East Liverpool market of late have said that retail stocks are low, and that it is an exceedingly hard matter to obtain replacements.

* * *

POTTERY AT CALIFORNIA EXHIBIT

The California Industrial Exhibit is completing its second yearly program. It has been held in the great Exposition Auditorium at San Francisco for three weeks. Among other exhibits there was that of the West Coast Porcelain Manufacturers who arranged a very attractive display of china bowls, washstands, tanks, and so forth. This was accompanied with explanations of the process of manufacture, calling attention to the selection of clay, pure and white, and containing the proper proportions of flint, quartz and other minerals.

The West Coast Porcelain Company uses entirely local clays. The plant has been in operation for four years, and so far has found abundant local demand for all it was prepared to place on the market. The company is now planning, however, to double the capacity of the plant at Milbrae, to meet the growing demands of the market.

The Pacific Sanitary Manufacturing Co. have a display entirely different, but altogether artistic and unique. Near the main entrance in an attractive and charming recess is placed an elegant pedestal wash basin. The recess is draped in rich colors, and the whole electrically lighted in such a manner as to throw into striking relief the beautiful white of the basin.

The display of Gladding, McBean & Co. was one of real art. In the center was a garden bench before a table, both entirely of terra cotta. On the table sat a terra cotta imitation of a basket filled with fine imitations in the same material, both as to form and color of every variety of fruit. Huge frogs, clay receptacles for large plants and small trees, vases of many varieties, jars and jardiniers suggested the boundless possibilities of terra cotta. On the side, a couple of fire places and a couple of art plaques for the walls com-

pleted what was to say the least an instructive, and attractive display.

* * *

STUDY TERRA COTTA CORNICE WORK

The Architect-Manufacturers' Committee on Terra Cotta Construction created some months ago at the request of Chas. A. Bostrom, Building Commissioner of Chicago, to study the problem of the manufacture and installation of terra cotta, has taken steps to bring about a thoro and satisfactory understanding with the Department of Buildings as to the best and most reliable construction for terra cotta work in Chicago.

An arrangement has been made for the Northwestern Terra Cotta Co. to build up at its plant (the work to be started immediately) a typical, full size, terra cotta cornice with anchors, hangers and other construction, and so forth, duplicating general building conditions as closely as possible. When ready, the Commissioner of Buildings and his assistants, together with the special architects' committee consisting of Chas. E. Fox, John A. Nyden and F. E. Davidson, will be invited to study the construction and accompanying specifications that will be recommended by the terra cotta manufacturers.

The object of the exhibit is to demonstrate what is believed to be a thoroly practical way of preserving iron from corrosion when used to support projecting terra cotta features.—Bulletin, Illinois Society of Architects.

* * *

EXHIBIT TILES AT MILWAUKEE

Under the auspices of the Associated Tile Manufacturers and Wisconsin Chapter of the American Institute of Architects an exhibition of tiles embracing practically every variety of color, pattern, size, glaze and finish was conducted from November 2 to 15. Among the speakers at the business meetings were Albert Kelsey, former president of the Architectural League of America, and D. Knickerbacker Boyd of Philadelphia. Those in charge of the exhibit were Leigh Hunt, chairman; H. W. Buemming, W. G. Herbst, Roger Kirchoff, Wm. H. Schuchardt, and Fitzhugh Scott.

* * *

10,000 SANITARY WORKERS OUT

It is estimated that about 10,000 workers are out in the sanitary ware potteries at Trenton, N. J., and vicinity, totaling 16 in all, as a result of the strike called on November 1, to enforce a wage demand of 20 per cent., and there is no immediate prospect of any general settlement. The Elite Pottery Co. and the Van Pottery Co., both of this city, have met the request of the men, as has also the Ironsides Pottery Co., at Bordentown, N. J. A number of the larger plants have not closed down, but are running a curtailed schedule, making efforts to secure non-union men to fill the vacancies left by the strikers. The Standard Sanitary Co., Elizabeth district, N. J., is said to be negotiating with the men for a settlement on the basis substantially as asked.

* * *

MADDOCK OPERATING DESPITE STRIKE

The Thomas Maddock's Sons Co., Trenton, N. J., manufacturer of sanitary earthenware products, is maintaining production at its plant and is filling the places of union workers who recently went out on strike. An effort is being made to secure non-skilled men and put them thru a course of training at the works. An initial wage scale of 60 cents an hour for a nine-hour day is offered, and it is pointed out that within a few months, the men can earn at the rate of \$40 a week for an eight-hour day.

W. P. CONAWAY JOINS WESTERN POTTERY

After having served the Paducah (Ky.) Pottery Co. for the past seven years as production manager, W. P. Conaway has resigned his position there to become production manager for the Western Pottery Co., Denver, Colo. Mr. Conaway says:

"It is our aim to make our ware as good as possible and put quality in it to the highest degree. We hope to introduce some new ideas in the near future."

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ORLANDO POTTERIES DOUBLING CAPACITY

The Orlando Potteries, manufacturers of clay products at Orlando, Fla., according to an announcement by N. P. Yowell, president of the company, is preparing to increase the size of its plant, and has ordered additional machinery that will practically double the present capacity.

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STRIKE FAVORS WESTERN PLANTS

An editorial in the Trenton (N. J.) Times deplores the fact that workers in the Trenton sanitary ware plants have laid down their tools. This paper is fearful of competition being offered the East by western plants. The paper says, "The fact is that by means of non-union labor and a more general use of mechanical devices, the West is seriously threatening the ability of local manufacturers to compete for business."

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It is reported that a process has been newly discovered whereby artificial ultramarine can be made from china clay.

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SANITARY POTTER DECLARES OPEN SHOP

The striking of 75 potters of the Universal Sanitary Manufacturing Co. at New Castle, Pa., forcing the plant to suspend operations, caused President C. J. Kirk of the company, to make the announcement that in the future the plant would be operated on the open shop basis.

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O. O. BOWMAN RESIGNS

O. Otis Bowman, 2d, Trenton, N. J., has resigned from his connection with the Trenton Fire Clay & Porcelain Co. and will devote all of his time to the Bowman Coal Co. of the same city, of which he is secretary and treasurer. This company previously was known as the Interstate Corporation.

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THREE POTTERIES GRANT UNION'S DEMANDS

The Jackson Vitrified China Co., Falls Creek, Pa., has granted the demand of employes for a seven per cent. increase in wages, and the plant has been reopened after a few days' shut down. It will give employment to about 100 persons. Other potteries which have acceded to a similar advance are the Mount Clemens (Mich.) Pottery Co. and the Southern Potteries Co., Erwin, Tenn.

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CONNECTICUT TO HAVE NEW COMPANY

The G. A. Zaccardi Tile Co., Inc., has been organized at Bridgeport, Conn., according to a report, with a capitalization of \$25,000, starting with \$15,000. G. A. Zaccardi, C. Zaccardi and P. Salembene are incorporators.

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N. J. PORCELAIN CO. BUYS ADDITIONAL SITE

The New Jersey Porcelain Co., Trenton, N. J., has acquired a large tract of property on New York Avenue, com-

prising the entire block between Strawberry and Plum Streets, and will use the site for plant enlargements at a later date. Preliminary plans for the new pottery are said to be in preparation, but details will be withheld until the project is ready to go ahead.

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VITROLITE ESTABLISHES ATLANTA BRANCH

The Vitrolite Products Co., Inc., has been organized and incorporated in Atlanta, Ga., to handle southern distribution of the products of the Vitrolite Co., of Chicago. Atlanta sales rooms are at 10-12 West Baker Street. Randolph Shaffer, of Atlanta, is the president of the company, and A. T. Hicks general manager of the tile department.

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CHICAGO TO HAVE NEW POTTERY

The Northwestern Pottery Co., 5220 Norwood Park, Chicago, has been organized, according to a report, to manufacture and deal in earthen products, pottery, and so forth. The capital is \$100,000, and incorporators are Richard C. Mazer, Edw. C. Blanko, Albert W. Bookham.

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NEW PORCELAIN PLANT IN OHIO

The Bush English China Co. Ltd., Port Hope, Ont., has been incorporated with a capital of \$1,000,000 by H. T. Bush, manufacturer of Port Hope, and others, to manufacture and deal in ceramic and porcelain products and enamel ware.

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FIND KAOLIN IN BRITISH COLUMBIA

South of Williams Lake in British Columbia kaolin has been found which government officials at Ottawa state is suitable for china manufacture.

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SOUTHERN POTTERIES RESUME WORK

The Southern Potteries at Erwin, Tenn., which were closed down in the summer and early autumn on account of lack of coal have resumed. They use about 150 tons a week when running full capacity and have one of the largest clay plants in the South.

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SYRACUSE STARTS ANOTHER KILN

"Dedication" of its second kiln at the new plant of the Syracuse Pottery, at Bell Isle, near Syracuse, N. Y., has taken place. The kilns are constructed differently than the ordinary pottery kiln and results are being watched with interest.

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TRENTON ADDS TO POTTERY FAMILY

The Newton Belleek Co., Trenton, N. J., has been organized under state laws with a capital of \$50,000, to operate a local pottery for the manufacture of belleek chinaware. The company is headed by Robert Weelans, Arthur B. Harris and William H. Vollmer, 59 Pierce Avenue, Trenton.

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NEW JERSEY TILE COMPANY FORMED

The National Tile Works, Inc., New Brunswick, N. J., has been organized under state laws with a capital of \$25,000, to manufacture clay building tile and kindred burned clay products. The company is headed by Samuel and Joseph LiCausi, 146 Neilson Street, New Brunswick.

Questions and Answers

Best Authorities in Every Clay Working Branch Are Called Into Consultation—Their Advice Is Free to You, Thru These Columns

Address all communications intended for this department to "Editor Questions and Answers, care of Brick and Clay Record," Chicago

WHAT IS THE COMMON STYLE OF KILN POCKETS

1,056. *Alberta—We would like to have your opinion or the opinion of some of the readers of your magazine in regard to what style of pocket is mostly used in kilns for the burning of sewer pipe.*

We have at our plant here nine kilns with the round type of pocket, but recently rebuilt a kiln and put in pockets of the square type. So far, we have not been able to obtain such well glazed material in the pocket of this kiln as we ordinarily do in the pockets of the round kilns.

Our kilns are 30 feet in diameter of the down-draft type. As we manufacturers have not had any experience or heard of anyone discussing these two types of pockets, we will be very glad if you will give us some information on this subject. We burn our kilns to cone eight and ordinarily have no trouble in the glazing.

This question was submitted to several men in the industry who have had considerable experience in burning sewer pipe and many good suggestions have been received.

W. B. Harris, superintendent of the Coral Ridge Clay Products Co., Louisville, Ky., offers this solution:

"I can see no reason why the square type of pocket should affect this glaze. I am assuming that your correspondent refers to what we always called the bag walls. We always referred to the space between the bag walls as the pockets.

"I note that the kiln they have the square pockets in is one that they rebuilt, and perhaps they have made some changes in the grate area or flue system. In my experience by far the greater number of fire bags have been of the square type, but I have seen both kinds used on the same yard and no difference could be noted in the glaze."

Other suggestions were received from E. F. Clemens, secretary of the Cannelton (Ind.) Sewer Pipe Co. Mr. Clemens writes as follows:

"It is our opinion that the type of fire bag or pocket will have very little effect, if any, on glazing sewer pipe. A number of years ago some of our kilns were built with round fire bags, but these were later discarded in favor of the square type. There was no difference observed in the glaze. We found that the kilns could be set and burned to better advantage if equipped with the square fire bag.

"Possibly the trouble in obtaining a good glaze may be due to the fact that the kiln, having been overhauled, has a much better draft than it had before being overhauled. Our suggestion would be to check the draft for a short time before, and during the salting period."

T. J. Evans, Jr., of the Evans Pipe Co., Uhrichsville, Ohio, says:

"From what we understand from your correspondent's letter, he has in mind what we term kiln bags and, frankly, we cannot see a great deal of difference between a round bag and a square bag outside of the cost of construction, the square bags probably being a little cheaper.

"All of our kilns here are equipped with square bags. We have tried the round bag occasionally, but we find it is of no benefit to us."

Evens and Howard Fire Brick Co., large manufacturers at St. Louis, Mo., have the following to say:

Organized
1885



Incorporated
1908

FIRE INSURANCE

In addition to effecting substantial reductions in Fire Insurance Rates, Squire Company's service includes Fire Prevention Engineering work—Adjustment of Losses—In fact, complete elimination of all worry in connection with insurance details.

Quotations upon request.

SQUIRE COMPANY

INSURANCE . . . BROKERS

SQUIRE BLDG. 81 JOHN ST.

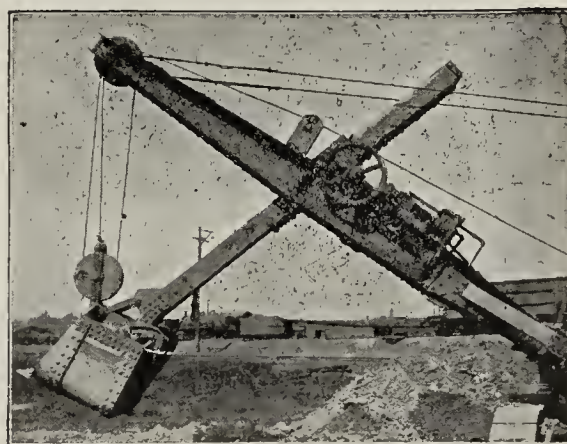
NEW YORK

CHICAGO
PHILADELPHIA

NEWARK, N. J.
LONDON, ENG

Insurance Specialists to Clay Manufacturers

Williamsport Wire Rope



Orton Steinbrenner shovels use Williamsport Wire Rope as standard equipment. They want you to know the grade of rope you get.

Good and bad ropes cannot be distinguished by their looks—that's why we run a patented tape throughout all Williamsport ropes to distinguish their grades and to insure your getting Williamsport.

It's the only wire rope so marked. You'll have to take a chance on getting the grade and make when using unmarked ropes.

Write us today for prices.

WILLIAMSPORT WIRE ROPE COMPANY

Main Office and Works:
WILLIAMSPORT, PA.

General Sales Office:
PEOPLES GAS BLDG., CHICAGO

"The fastest growing wire rope plant in America"

ATLANTA, GA

BALTIMORE, MD.

BOSTON

DETROIT

PITTSBURGH, PA



SAN FRANCISCO

ST LOUIS, MO

TORONTO

WINNIPEG, MAN

PHILADELPHIA

MONTREAL

MINNEAPOLIS

NEW YORK CITY

MORSE Silent Chain Drives are 98.6% efficient for small or large drives. No worry about belt trouble, slippage of power and loss of production where Morse Chain Drives are installed.

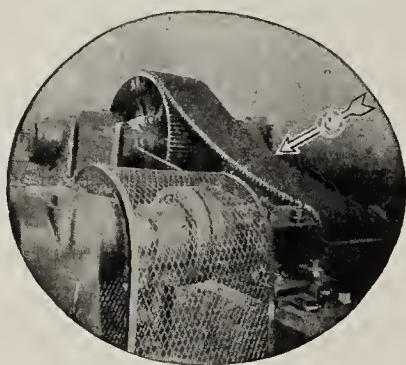
Write us if you have a transmission problem. We give engineering service without any obligation.

Drop a Card to the Nearest Morse Engineer

MORSE CHAIN CO.

Largest Manufacturers of Silent Chains in the World

ITHACA, NEW YORK



CHARLOTTE, N. C. CHICAGO CLEVELAND KANSAS CITY, MO

"At this factory kiln sizes vary from 25 to 40 foot in diameter. In the past types of bags have varied from a continuous flash wall six feet high to square bags three feet high, including semi-circular bags. It is our opinion that with a fixed throat area in the bag, variations in width as against length of the orifice are negligible until either dimension becomes less than ten inches. We have standardized on a rectangular bag five feet high above the floor level, battered two inches and having dimensions at the top of 11 inches in depth by 33 inches in width.

"It is our opinion that the success of glazing in the pockets is based very largely on the distribution of draft area in the secondary bottom. The draft area in the pockets of our kilns is approximately 70 per cent. of the total area of a section around the kiln 42 inches wide. This includes a circular collecting flue which has small openings in front of each bag. In the balance of the kiln there are no secondary bottom openings within 30 inches of the circular flue. The total area of draft openings in the secondary bottom included in the above space is 65 per cent. of the draft area of the bottom."

Drawn from the Kilns

Being Brief Mention of a Host of Interesting Happenings in the Varied Fields of Clay Manufacturing

W. E. MILLER PASSES AWAY

W. E. Miller of Waynesville, N. C., died September 21, aged 79 years. Mr. Miller was a pioneer citizen of Waynesville, and many of the older brick buildings in the town are constructed of brick manufactured by him.

CHARLES A. FORD SUCCUMBS TO DEATH

Charles A. Ford, retired brick manufacturer and a resident of Columbus, Ohio, for more than 50 years died at his home in Columbus recently. Mr. Ford attained the ripe old age of 76 years and leaves a large family to mourn his departure.

AGED BRICK MAN DIES

Elliot W. Williams, 73 years old, a retired brick manufacturer, of Clarksburg, W. Va., died recently of heart disease. He left his wife and six children.

ORLA O. PARKER VICTIM OF SEVERE ILLNESS

His friends in the industry will be sorry to learn of the death of Orla O. Parker of Martinsville, Ind. He passed away at the Hope Methodist Hospital, Ft. Wayne, Ind.

DEATH TAKES J. W. BATES

In the death of J. W. Bates, October 22, at the Davis-Fischer Sanitarium, Atlanta, Ga., the South has lost one of its best clay workers. He was connected with the B. Mifflin Hood Co. His loss will not only be felt at Rome, Ga., but in the entire state and the South. It was the knowledge and skill of Mr. Bates that successfully started off the new shale face brick plant of the B. Mifflin Hood Co., at Norwood, N. C., two years ago. Mr. Bates has successfully operated as superintendent clay working plants in Georgia at Missionary Ridge, Rome and Calhoun, Ga. He was born at Ashland, Ky., and has always followed the clay working business and won special distinction in his knowledge of burning and the vitrification and fireflashing of shales. His loss to the industry will be felt for a long time.

Salem Elevator Buckets



We are manufacturers of the original SALEM ELEVATOR BUCKET which is used for handling all classes of materials in many different industries.

This type of bucket is of one piece construction, with rounded contour throughout, smooth in form, durable in service and clean in handling and delivery of materials.

There are no seams in front nor on the ends, the laps being made on the back and bottom at the ends. On the back the laps are riveted or spot welded; on the bottom the end pieces are bent under and hammered tight.

The widest range of service is covered by a very full line of regular types and sizes and made in various gauges of steel, from the lightest practical for ordinary work to the heaviest necessary for the most severe duty.

Write for new price list.

THE WEBSTER MFG. COMPANY

4500-4560 CORTLAND ST., CHICAGO

Sales Offices in Principal Cities

H. H. SIMON TOURS SOUTHWEST

Herbert H. Simon, sales engineer for the Los Angeles (Cal.) Pressed Brick Co., recently completed a tour over a considerable part of Arizona served by the Los Angeles company.

R. A. MacDONALD GOES TO CLEVELAND

Roy A. MacDonald, formerly connected with the Pittsburgh district sales office the General Refractories Co., has been placed in charge of the recently created district in Cleveland.

L. M. JOHNSON GOES TO VOLANT, PA.

L. M. Johnson, formerly of Kirby, Ohio, is now at Volant, Pa., where he has taken over the management of the Liberty Clay Products Co. Mr. Johnson's main work will be bringing the plant into shape as a modern establishment.

G. P. FISHER WINS PROMOTION WITH "NATCO"

At a recent meeting of the National Fireproofing Co. at its headquarters in Pittsburgh, Pa., it was decided to divide the plants of the company into three districts. The plants located at Hobart and Brazil, Ind., and Pullman, Ottawa and Twin-Bluffs, Ill., were formed into one district, and George P. Fisher placed in charge as Western District Manager. Mr. Fisher has been superintendent of the Ottawa plant for several years. He left this position temporarily during the war to enter an officers' training camp, and obtained a commission. After his discharge he returned to the plant and later was given charge of the Twin-Bluffs plant.

F. W. Gunther, who has been assistant to Mr. Fisher, will succeed him as superintendent of the Ottawa and Twin-Bluffs plants. Both gentlemen are graduates of the ceramic department of the Ohio State University.

OFFICER, HE'S IN AGAIN!

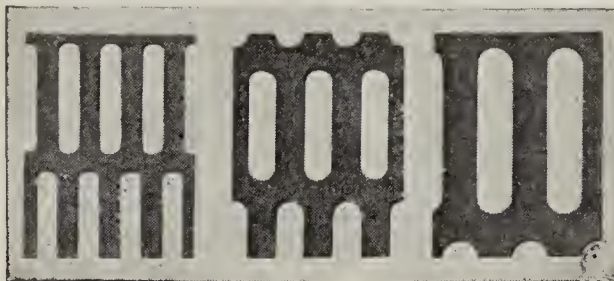
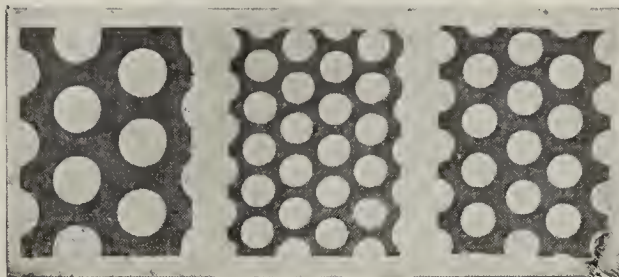
It certainly is hard to keep Irving A. Ryttenberg of "Airedale Brick" fame out of the public eye very long. "Rytt" is president and treasurer of the Sumter (S. C.) Brick Co., and has created a considerable name for himself among architects and fellow manufacturers as manufacturer of the much discussed Airedale Brick which "like Airedale dogs, are so darned ugly, they are beautiful." Now, there is a story going around about Rytt which is too good to keep. Those who know him will see that he is again running true to form.

It seems, when times were good a few years ago, Rytt bought a few shares of stock in a small bank and was afterwards made a director—possibly to get him to write their advertisements without charge.

Coming from Boston in October, Rytt landed in New York at the time of a meeting of the American Bankers' Association. He met the president of his bank, who took him to headquarters and registered him as a director, and, therefore, as a guest.

With his A. B. A. badge, he attended all the entertainments at night, but the records don't show what he attended in the day. The story goes that he visited more of the big architects than he did the big bankers, and when he found the office boy or the secretary doubtful about admitting him, he put his hands in his pockets, thereby rolling back his coat and displaying his badge. Others tell it that he flashed this badge like a detective in a movie. It is presumed that word was carried back to the effect that a visiting banker wanted to see the big boss, and Mr. Architect was wondering whether he was going to get a loan, or an order for plans for a bank building.

It certainly was a surprise to him when, after admitting to his private office a gentleman carrying a cane and gloves

Perforated Steel Screens**For Screening Clay, Shale, Sand, Gravel, Stone and Cement**

All sizes and shakes of holes in metal of proper thicknesses to give the best screening results.

Sheets furnished flat or rolled to shape for revolving screens.

THE HARRINGTON & KING PERFORATING CO.

635 N. Union Ave., Chicago, Ill.

NEW YORK OFFICE: 114 Liberty St.

WOULD YOU LIKE TO MAKE BETTER BRICK ?

USE R. & H. PRECIPITATE CARBONATE OF BARIUM TO PREVENT SCUMMING AND THEREBY PRODUCING BRICK THAT ARE RICHER AND DEEPER IN COLOR, CLEANER AND CLEARER IN APPEARANCE.

IF YOU ARE TROUBLED WITH SCUMMING, WRITE US TODAY FOR CIRCULAR.

THE
**ROESSLER & HASSLACHER
CHEMICAL CO.,**

NEW YORK

CHICAGO
BOSTON
PHILADELPHIA

TRENTON
NEW ORLEANS
PITTSBURGH

KANSAS CITY
CLEVELAND
SAN FRANCISCO



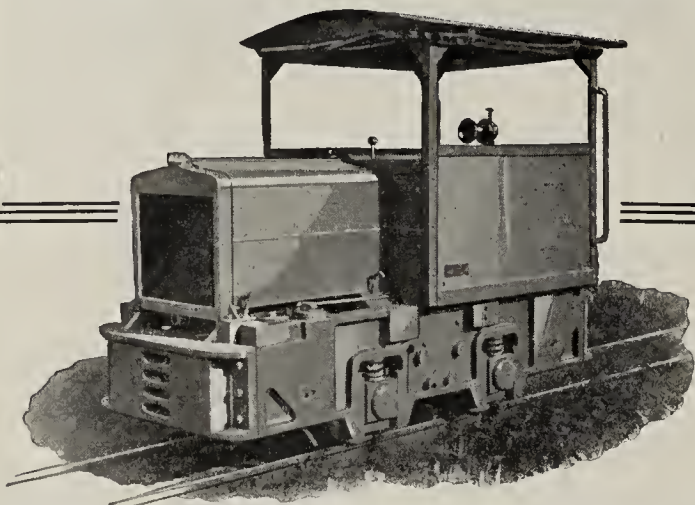
BUILT TO OVERWORK

WHEN IT COMES to HAULING

The new Whitcomb is the job for your pit. Equipped as it is with a Wisconsin overhead valve motor, removable radiator core, roomy cab, allowing clear vision in all directions, and other marked improvements, it naturally leads the field of gasoline locomotives. Let us show you where a Whitcomb will reduce your hauling costs.

Write for full description

GEO. D. WHITCOMB CO. Rochelle, Ill.



and wearing the banker's badge, to find out that, unawares, he was entertaining a brick salesman. The office boy was just outside and soon Rytt had his Airedales prancing all over the desk.

NEW ALABAMA PLANT OPERATING

The new plant of the Three Brick Co. at Tuscaloosa, Ala., has been completed and is now in full operation. This is one of the biggest brick plants in Alabama. Approximately 50,000 brick, of a very good quality, are being turned out daily at this plant. This company already has a sufficient number of orders to keep the plant in operation for practically a year.

CAR SHORTAGE TROUBLING BIRMINGHAM

Demand for brick, sewer pipe and clay products of all kinds remains strong and the prices are steady in Birmingham, Ala. All of the brick and clay plants in the Birmingham district are being operated at capacity. The only difficulty the clay manufacturers are experiencing is the shortage of cars in which to ship their products. However, conditions in this respect are somewhat improved over two weeks ago. As a general thing all of the clay plants have as many orders ahead as they will be able to fill for several months.

SAN FRANCISCO GETS BUILDING EXHIBIT

A new establishment in San Francisco is the Universal Exhibits, in charge of C. A. Cady, and occupying a large space in the basement of the Monadnock Building in the very heart of the city. The purpose is to bring together every variety of material that the architect, contractor or builder may wish in a way convenient for inspection and comparison.

Why Toronto Pans Are Better

Well Studied Details Make
TORONTO PANS

**STRONGER
MORE DURABLE
MORE SERVICEABLE
THOROLY RELIABLE**

**THE TORONTO FOUNDRY & MACHINE CO.
TORONTO, OHIO**



**10 FOOT
TORONTO
DRY PAN**

Complete Oil and Gas Burning Systems

for

Brick and Pottery Kilns

**Over 10,000 Burners
in use daily**

Our years of experience devoting our energies to the clay burning industries exclusively assures you satisfactory results.

National Products Co.

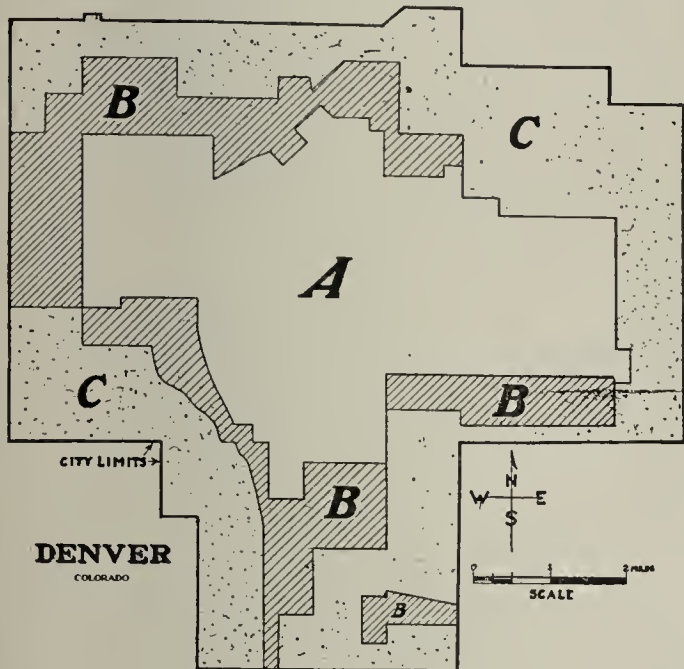
East Liverpool,

Ohio

IS BRICK SLIPPING IN DENVER?

Evidence that your competitor is never asleep but always seeking to promote his product to the utmost is contained in an item discovered in the National Lumber Bulletin of October 7. It looks suspiciously as tho something had been slipped over on brick. The bulletin printed the illustration here shown together with the following:

"In a city notoriously brick 'by birth and training,' the new building code of Denver opens a large area to protected



A represents fire zones.

B districts in which new code permits frame houses with stucco finish.

C unrestricted areas.

frame construction. This new area, which approximates 14 square miles, is represented on the foregoing map by diagonally lined spaces.

"The National Lumber Manufacturers' Association has been in close touch for the past 15 months with Denver authorities, assisting their committee in the formation of the new code. The majority of the requirements in the new code are taken from the recommendations of the National Association."

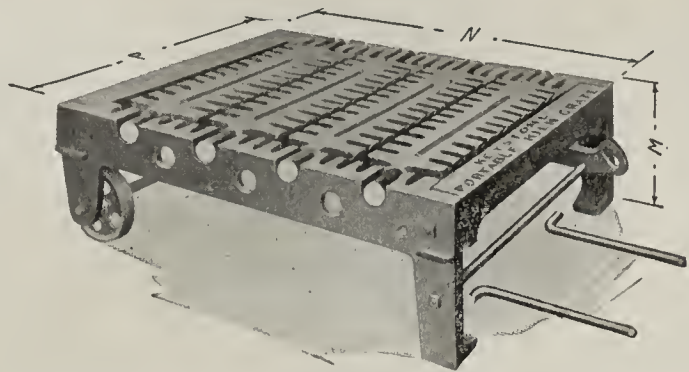
HOOD ENLARGING ROME PLANT

Work has started on the reconstruction of the plant of the Rome (Ga.) Fireproofing Co., purchased recently by the B. Mifflin Hood Brick Co., of Atlanta. The plant also is being considerably enlarged and its capacity will be much greater when the work is completed. It will be used for the manufacture of hollow building tile, the Hood company advises, and it is also proposed to establish a plant for the manufacture of impervious light-face brick. Between \$75,000 and \$80,000 is being invested in the work at Rome, Ga.

B. Mifflin Hood, president of the B. Mifflin Hood Brick Co., of Atlanta, Ga., advises that the company has received an order from the Bahama Islands for 16 carloads of roofing and floor tile to be used in the construction at Nassau, B. I., of a new hotel. This is the second big order for export the company has received in the past 30 days, and he advises that the export situation is experiencing rapid improvement among practically all of the southern manufacturers. The above order will be turned out at the company's plant at Daisy, Tenn.

CHICAGO RETORT REMODELS MACHINE ROOM

New machinery has been installed in the machine room of the Chicago Retort & Fire Brick Co., at Ottawa, Ill., and



More Heat Per Pound of Coal, Even Temperatures LESS COST

Competition and popular insistence for lower prices is forcing the clay products manufacturer to scrutinize his costs in nearly every department.

What of your burning, Mr. Manager? Are you getting maximum heat from each pound of coal?

Marion Portable Kiln Grates will help you to reduce your fuel costs, improve quality and save labor.

Ask for descriptive details.

**MARION MACHINE FOUNDRY
& SUPPLY CO.**

P. O. Box 395

Marion, Ind.



Why Western Brick Co. of Danville Use Electric Steel Grate Bars—

1. Cost less.
2. They weigh from 4 to 5 lbs. less than iron.
3. Are free from breakage around yard.
4. Burn out much more slowly than iron.
5. Obtain double service because they can be reversed.
6. Easier to handle.

Write for Complete Information

ELECTRIC STEEL CASTINGS CO.
Indianapolis - - Indiana



Performance has two dimensions— Quality and Quantity

We could tell you of the endless research in both field and laboratory that has developed such improvements as Automatic Temperature Control. We could point with pride to equipment that winds moving elements with wire as fine as a hair—or to the 101 other differences in Brown methods that are responsible for Brown accuracy and stamina.

But it's what Brown instruments do in the field, in everyday, hard service that counts.

In the field Browns are supreme. There are nearly as many Brown Pyrometers in use in America as all other makes combined—because they make good, and keep right on making good, without coaxing.

THE BROWN INSTRUMENT COMPANY
4503 Wayne Ave., Philadelphia, Pa.

New York Pittsburgh Cleveland Detroit Chicago
St. Louis Denver Los Angeles San Francisco Montreal



210

Brown Pyrometers

Most used in the world

SUNBURY

AUTOMATIC CAR UNLOADER

Loads or unloads coal at the rate of 30 to 50 tons every hour. Only one man needed.

Let us tell you what other clay plant operators are doing with the Sunbury in saving time, money, and labor.

The Sunbury Manufacturing Co.
Sunbury, Ohio



these improvements, it is believed, will result in the development of a better quality of high grade brick. The machinery was installed at a cost of approximately \$25,000.

TWO EDWARDSVILLE COMPANIES MERGE

The Edwardsville (Ill.) Shale Products Co. has taken over the Banner Clay Works at Edwardsville and has begun manufacturing brick and building blocks. Conrad F. Nystrom is general manager of the plant. The first brick were made October 24. The McEwing & Thomas Clay Products Co. of St. Louis has contracted for the entire output of the plant, 12,000,000 brick annually. The plant represents an investment of \$200,000. Officers and directors of the new company are: Frank Frommeyer, St. Louis, president; C. W. Meycr, St. Louis, vice-president; Conrad F. Nystrom, Galesburg, general manager; M. D. Powell, Edwardsville, secretary-treasurer; C. W. Terry, Edwardsville, and Charles E. Gueltig, Edwardsville, directors.

CHICAGO CERAMISTS TO HAVE BIG MEETING

Preparations by the program committee of the Chicago section of the A. C. S. have been under way for several weeks to design an event of more than unusual interest to the ceramists in the Chicago vicinity. This program will be presented at the annual meeting which will be set for Saturday, December 2, Morrison Hotel, Chicago.

Talks on interesting phases in connection with the manufacture of enamels, terra cotta, and brick will be presented. An attempt is being made to secure representative from a prominent firm of industrial engineers who have done work in the ceramic industry, to talk on the scheduling and routing of production.

A new type of smelting furnace for terra cotta and enamel frits will also be described.

Efforts to secure a ceramic department in the new Crane College will be described at this meeting. All men in the Chicago vicinity should support this endeavor to secure a ceramic school that would provide a valuable source of trained men for the ceramic factories.

In addition to these attractions a china lamp will be given away to the holder of the lucky dinner ticket.

All indications point to this being the greatest local section meeting ever held in the Chicago district. It will commence with a luncheon at 12:30 p. m. after which the speakers will have the floor. All interested are invited to attend.

INDIANA RATES ARE UNSATISFACTORY

Indiana freight rates worked out by railroads according to the general order of the Interstate Commerce Commission, which established a general basis for brick rates, have been attacked by Indiana brick manufacturers. Altho some reductions in rates were offered in the proposals of the carriers, brick manufacturers objected to other rates which they said were 15 to 30 cents a ton higher than the Illinois-Indiana rates for like distances. It is the contention of the brick men that the carriers had not correctly interpreted the Interstate Commerce Commission's order when they worked out the Indiana rates.

DES MOINES TO HAVE ANNUAL BUILDING SHOW

The Des Moines (Ia.) Building Exposition Association has filed articles of incorporation to sponsor and direct an annual building exposition for the city of Des Moines. L. C. Perkins of Perkins Builders Supply & Fuel Service is head of the association. The executive committee is composed of Roy Heartman, Equitable Insurance Co. of New York, Ralph Tuller, Reliance Brick Co., and Ellis Englebeck, Queal Lumber Co. The backers of the association are all engaged in the home building or furnishing business. The

first project undertaken by the association will be Des Moines' second annual building exposition, to be held next February.

CORAL RIDGE MAY OPERATE ALL WINTER

The Coral Ridge Clay Products Co., Louisville, Ky., has unfilled orders on hand that will assure full running for at least four months, if not longer, while new business is coming in freely. The plant is operating full, on about a 50-50 shift between brick and tile. Coal is now plentiful and at much lower prices, while the car supply has shown material improvement, and not much delay is being met with from that source.

OUTLOOK GOOD IN LOUISVILLE

The situation in Louisville, Ky., is looking mighty good as a result of heavy demand for clay products, lower prices for coal, somewhat better car supply, and outlook for all brick and tile plants to run as close to capacity this winter as weather conditions will permit. Prices are firmer than they have been for a long time. Local quotations show face brick at \$27.50 on board cars and \$32 delivered, with common brick, \$17.50 on cars and \$20 delivered; while hollow tile is 50 per cent. off list on board cars and 40 per cent. off where delivered. Prices are subject to discount of ten per cent. in 15 days of delivery. Salmon brick are selling at around \$5 to \$7 a thousand under common hard.

LOUISIANA COMPANIES ADVERTISING

Brick manufacturers in many parts of the country are taking advantage of the publicity and other measures being advanced by the Common Brick Manufacturers' Association of America, Cleveland, Ohio, for the furtherance of brick construction. Two conspicuous efforts along this line are announced by recent visitors to Cleveland.

R. F. Mestayer, of the Salmon Brick & Lumber Co., New Orleans, La., announced the recent completion of a complete bungalow in the salesrooms of the company's office building, where visitors and prospective purchasers are shown a definite example of how their future house may look.

The Shreveport (La.) Brick Co. is completing plans for an extensive local advertising campaign, designed largely to extol the merits of brick construction.

These two advertising efforts are the direct result of work by the Common Brick Manufacturers' Association.

HOWARD REFRACTORIES DECREASES CAPITAL

The Howard Refractories Co., operating a plant at Dorsey, near Baltimore, Md., for the manufacture of fire brick and other refractory products, has filed notice of decrease in capital from \$300,000 to \$100,000.

FORM CONSOLIDATED BRICK CO.

The Consolidated Brick Co. of Melrose, Mass., has been incorporated with a capital of \$98,000. The incorporators are George L. Baldwin and Kathryn M. Danforth of Worcester, Mass., and James E. Fraser of Melrose, Mass.

WANTS DATA ON BRICK MACHINERY

John T. Sharp, Jr., of Canton, Miss., is reported to be interested in the establishment there of a brick manufacturing plant. He has requested data and prices from manufacturers on brick making machinery.

SUSTAINS \$2,000 FIRE LOSS

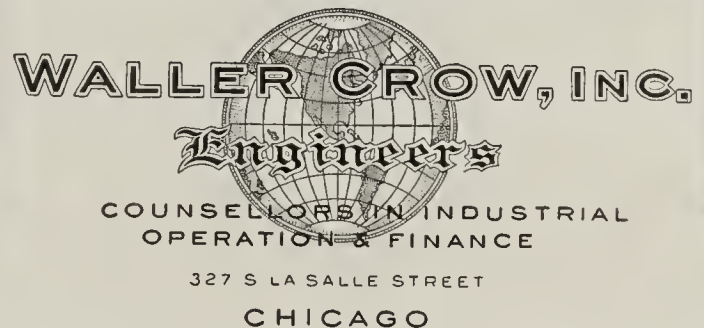
Spontaneous combustion in a car load of coal was accused of causing fire in the brick plant at Ord, Neb. It is estimated

Building a New One? Remodeling the Old?

No matter which you are doing our service can be of benefit to you.

A sincere interest in your problem, together with common sense methods and a broad experience makes this service highly profitable.

Write for details



Rugged Construction

The One Man Excavator has that RUGGED CONSTRUCTION which makes possible continuous hard usage under all conditions. Take for instance the digging of hard shale at the Coen Brick & Tile Works, Homestead, Pa.

The One Man Excavator will help you reduce costs this year. Ask about it.

Furnished with traction wheel or caterpillar tread, gasoline or electric power.

The Bay City Dredge Works
BAY CITY, MICHIGAN

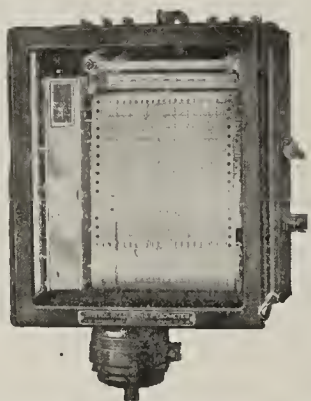
THIS WINTER

When winter sets in—and the thermometer begins to drop—when the snow falls and colder winds blow—how are you planning to hold even temperatures? Will they fluctuate with the weather, or will you have perfect control?

Bristol's Pyrometers afford a perfect control of all temperatures up to 3000° Fahrenheit. They accurately indicate and record, thus giving your burner immediate warning in case of sudden drop or rise in heat.

Ask for our latest catalog
AE 1401—the most complete pyrometer catalog ever published

The Bristol Company
WATERBURY CONNECTICUT



STEVENSON

DRY PANS

WET PANS

ROLL CRUSHERS

SEWER PIPE PRESSES

SEWER PIPE TURNERS

TILE PRESSES

PRESS FEEDERS

CRUSHER FEEDERS

PAN FEEDERS

BUCKET ELEVATORS

GRAVITY ELEVATORS

BRICK BARROWS

TILE BARROWS

SEWER-PIPE BARROWS

GIGS

ETC.

THE
STEVENSON CO.
Welleville Ohio

Western Sales & Engr.
Office

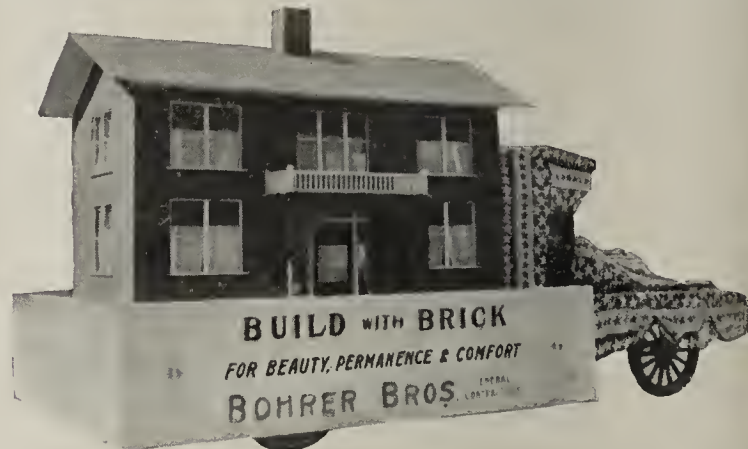
801-802 Monadnock Bldg.
Chicago, Ill.

Bulletins
on
Request

that the work of replacing the damage would amount to approximately \$2,000. E. W. Gruber & Son, owners, have not announced plans of rebuilding.

CONTRACTOR ADVERTISES BRICK

This photograph of a float representing a brick house was sent to us by the Hydraulic-Press Brick Co. of Omaha, Neb. The float was built by Bohrer Bros., brick contractors at Falls City, Neb., and was entered in the stock show parade held in that city just recently. H. W. Bubb, sales manager



for the Omaha branch of the Hydraulic-Press Brick Co. says: "It is very evident that these contractors are doing their share in pushing face brick and should be complimented for their untiring efforts. They say it was quite a beautiful float and attracted a great deal of attention. It was built of wood and composition board, was painted red and lined off with a white mortar joint to represent a brick house."

ATLANTIC CITY TO HAVE NEW PLANT

The Beacon Hill Brick Co., Atlantic City, N. J., has been organized with a capital of \$100,000, to operate a plant in that vicinity for the manufacture of common brick. The company is headed by S. A. Burris and John C. Slape, 446 Guarantee Trust Building, Atlantic City.

FRITZINGER BUYS NEW JERSEY PLANT

Following the purchase of the Kesco Clay Products Co., at Piscataway, N. J., by John H. Fritzinger, operations have been resumed. Hollow tile is the product being manufactured. Mr. Fritzinger was formerly connected with the National Fireproofing Co.

NEW JERSEY CLAY FAMILY INCREASES

The Colonial Brick Co., Cliffwood, N. J., has been organized under state laws with a capital of \$100,000, it is said, to operate a local plant for the manufacture of common and face brick. The company is headed by Frank J. Bell, George M. Craigen and Orman W. Ketcham. It is represented by Fred Hankins, Cliffwood.

NEW YORK EXPECTS BIG 1923

In the face of conditions that are operating against the normal progress of building construction, there is a firmness to the building material price market that is significant of an unusual volume of building construction after the turn of the year, says the Dow Service daily building report of November 4.

Hudson hard brick prices have dropped 50 cents a thousand for best grades, making the current wholesale quotations at the week-end \$14 to \$15 a thousand.

FORM CERAMIC CLUB AT RUTGERS

The formation of a ceramic club at Rutgers College, New Brunswick, N. J., formed of students in the ceramic depart-

ment at the institution, initially projected a number of months ago, has been definitely established under the direction of Professor George H. Brown, head of the department. A large number of new students have elected to take the course of study during the present school year, and the Rutgers Ceramic Club, as it will be known, is expected to assist materially in various branches of the work.

"BEST YEAR" SAY POWELL BROTHERS

Powell Brothers of Lenoir, N. C., are manufacturing 25,000 brick daily and can not fill all the orders coming in. This year has brought more business than any other in the history of that plant. A new brick machine has been installed and it is planned to put in a clay feeder and disintegrator.

TAKES OVER PENNSYLVANIA PLANT

The Central Refractories Co., of Newark, Ohio, has taken over the Center Brick & Clay Co. at Orviston, Pa., and the fire brick plant at Snow Shoe, Pa., together with large deposits of fire clay in Clinton County, it is reported.

FORM COMPANY TO MINE AND MANUFACTURE

In addition to mining and selling coal, the E. J. Lewis Coal Co., of Wellsville, Ohio, recently chartered with a capital of \$150,000 will mine clay and manufacture various kinds of clay products. The place of business is at 630 Henry St., Wellsville, while the plants to be erected will be outside of that town. The incorporators are D. B. Mackintosh, E. J. Lewis, John P. Wilson, S. D. Foster and G. L. Brokaw.

CAPACITY OF NEW COMPANY TO BE 66 M DAILY

The Dayton (Ohio) Brick Co. has been incorporated by Lincoln J. Davis and John M. Mulford with capital of \$200,000. A site has been obtained in the southwestern section of the city for a new plant, which it is expected will be in operation by the first of the year. It is planned to turn out 50,000 common brick and 16,000 face brick daily. About 40 men will be employed.

CLEVELAND TRAINS MANY BRICKLAYERS

Progress toward reducing the bricklayer apprentice shortage in Cleveland, Ohio, shows a degree of rapidity that is even astonishing those who backed the project when it first was put into effect last June. Starting with 66 registered apprentices, the bricklayers school, which is being conducted under the joint supervision of the Building Trades Employers' Association, the Mason Contractors' Association and the Board of Education, the school now has 150 registered apprentices, and a total of 165 youths actually taking the instruction.

SUPERIOR INSTALLS NEW DRYER

Plans for increasing production are being completed by the Superior Brick Co., Cleveland, Ohio. A new dryer, in course of construction during the last few weeks, is nearly completed, and is expected to be ready for operation December 1, according to J. F. Aten, general manager. Demand for common brick, says Mr. Aten, has not diminished as usual with the approach of the fall and winter season, and it is with the idea of meeting the demand that is likely to keep up during what was formerly the dull season that the new department has been built.

OHIO BUILDING ASSOCIATION MEETS

Building and loan men from all parts of Ohio and from many sections of the United States will come to Columbus, Ohio, November 14, 15 and 16 to attend the thirty-fifth annual meeting of the Ohio Building Association League, all



SPECIAL Kiln Burner No. 8

A ALERT BUYERS who judge economy by performance rather than first cost are responsible for the popularity of the

Smokeless Oil Burner

The burner of perfect control at all stages of the burn, that does not deposit soot or carbon on the ware, that is non-drip, non-clog and produces clean, efficient heat.

The Smokeless Oil Burner Co.
BUCYRUS, OHIO

Tanks Pumps Meters Strainers



Saves Time and Labor Unloading Cars

SPEED — Fifty ton cars are unloaded in 1½ to 3 hours by two men and the Scoop Conveyor. No pit or track hopper is necessary.

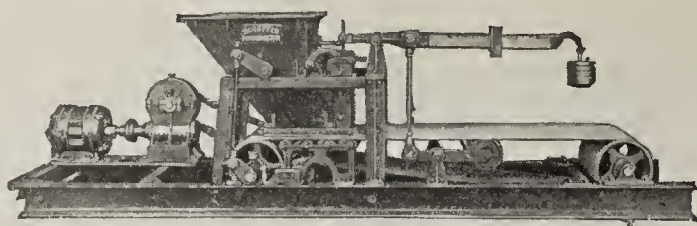
ECONOMY — Costs have been cut from an average of \$18 per car to \$2 per car (a saving of 89%) by thousands of Scoop Conveyor users.

Our present product is the outcome of years of experience in the design, manufacture, installation and maintenance of thousands of portable belt conveyors. It is a complete answer to industry's demand for dependable and economical operation.

Write for Catalog No. 60

Portable Machinery Co.
PASSAIC, N. J.

THE SCOOP CONVEYOR



LABOR SHORTAGE!

WHAT WILL IT DO TO YOUR BUSINESS?

The day of the old unskilled labor with a pick and shovel, ready at a moment's call is gone. Every job in the future will require more machines and fewer men if the work is to be done at a price commensurate with buying power.

The Poidometer will replace your pug mill man—eliminate him entirely—and mix and temper your clay more accurately and with unequalled speed.

*Our engineering staff
explain in detail.*

SCHAFER ENGINEERING and EQUIPMENT COMPANY

2828 Smallman Street

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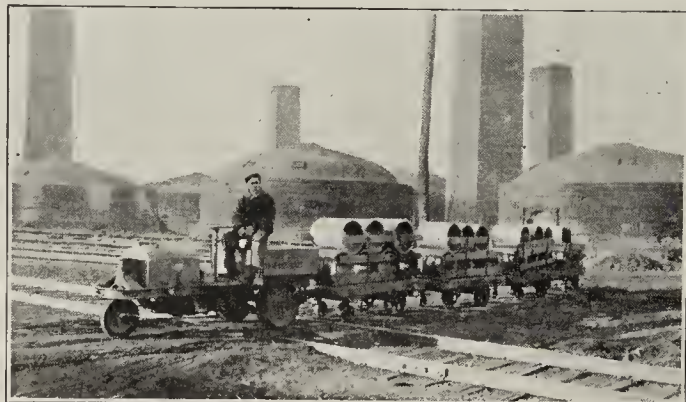
sessions of which are to be held at the Deshler Hotel. Among the men who will take an active part are Thomas L. Pogue, Cincinnati, president of the Ohio Building Association; Herman F. Cellarius, Cincinnati, secretary of the U. S. League of Building and Loan Associations; L. M. Sturdevant, Sidney, a member of the executive committee of the U. S. League; E. L. Kessler, Charlotte, N. C.; F. A. Chase, Kansas City, Kansas, manager of the building and loan department of the Southwestern Lumbermen's Association; James M. McKay, Youngstown, president of the largest financial institution in eastern Ohio; Leonard E. Weitz, Cleveland, president of the Cuyahoga County League of Building and Loan Associations, and many others.

OHIO BUILDS 190 MILES OF BRICK ROADS

The Ohio Department of Highways and Public Works, during the year 1922, awarded contracts for improvement and building of 667,706 miles of roads, amounting to \$19,012,183. Statistics show that there were 41,671 miles of plain concrete costing \$38,110 per mile; 154,241 miles of reinforced concrete costing \$28,349 per mile; 10,626 miles of water-bound macadam costing \$20,625 per mile; 81,249 miles of bituminous macadam asphalt costing \$22,731 per mile; 87,341 miles of bituminous macadam tar costing \$22,895 per mile; 81,810 miles of brick with a macadam base costing \$34,481 per mile; 73,953 miles of brick with a concrete base costing \$39,917 per mile; 33,741 miles of monolithic brick costing \$32,312 per mile; 36,153 miles of Kentucky rock asphalt costing \$24,582 per mile; and 7,505 miles of gravel costing \$10,700 per mile. There was also 40,838 miles of grading at \$7,800 per mile. Reconstruction and widening was carried on to the extent of 8,754 miles costing \$125,722.

The cost of brick improving in all types was \$6,944,961. This is a good record as far as public improvement is concerned.

"This machine replaces nine wheelbarrows"



A certain clay tile plant finds that a Clark Tractor tows as much on one load of trailers as nine men can tote on wheelbarrows—quicker and cheaper too!

CLARK TRACTOR CO.

1124 Days Ave.

Buchanan, Mich.

FORM BRICK GROUP TO PROMOTE FAIR DEALING

New method for attaining closer cooperation among members for more and better business has been adopted by the Supply Dealers Board of Cleveland. First step in this direction is the appointment of a Brick Group, by President A. O. Preyer, the purpose of which will be to make for fair dealing among all those who feature brick sales in their business. The move also will be beneficial, not alone to the retail dealer, but to the large distributor of the material.

The group is headed by Leo A. Krueger, president of the Cleveland Clay Products Co., and includes in its membership A. L. Goldman, Builders Supply & Fuel Co.; C. G. Deckman, Medal Paving Brick Co.; E. G. Barnett, Geist Building Material Co.; H. F. Kemper, Kemper Material Co.; A. J. Earle, Independent Brick & Tile Co.; A. S. Fielding, Hydraulic-Press Brick Co.; W. Bovey, Goff-Kirby Co.; D. G. Oviatt, R. L. Queisser Co.

At the initial meeting of the group, Mr. Fielding was appointed to draw up a code of ethics. A tentative plan along this line has been adopted, and this is being developed in a practical manner already, and better business already is resulting, in the opinion of Chairman Krueger.

The code in its initial form follows:

1. Take no action which infringes upon the laws of your country.
2. Quit knocking. Do not discredit competitor's product or act in any other way detrimental to our mutual general interest. Sell your own goods.
3. Refrain from further solicitation after a competitor has secured an adoption, or an order, to be considered such when formally expressed in writing.
4. Do not renew selling efforts in case of disputes regard-

ing time or quality of deliveries, except with the knowledge of the original seller.

5. Hold firmly to the ideal of service to your customers, whether architect, contractor or owner. Also to your competitors. Remember what helps building business, helps us all.

TO BUILD PLANT AT HOLDENVILLE

Charles Morris of Holdenville, Okla., is preparing to establish a brick plant, it is said, following the discovery of a large deposit of brick clay in that vicinity.

FIRE DESTROYS ALL BUT MAIN BUILDING

Fire recently destroyed all property except the main building of the Paxton Brick Co., located four miles west of Middleburg, Pa. The estimated loss is placed between \$20,000 and \$30,000. This plant is one of the large producers of brick in central Pennsylvania, having a capacity of 15 to 20 carloads per week. Rebuilding will begin at once.

WANT FREIGHT RATES REDUCED

The Harbison-Walker Refractories Co., Pittsburgh, Pa., Bethlehem Steel Co., and a number of associated interests, have filed a joint complaint with the Public Service Commission, Harrisburg, Pa., against the rates of the Pennsylvania Railroad Co., for hauling fire brick and fire clay from Mount Union to Harrisburg, Steelton and vicinity. It is contended that these are too high and that the companies are entitled to reparation.

SPENDS MILLION ON BLANDBURG PLANT

\$1,000,000 have been expended by the Harbison-Walker Refractories Co. on improvements and additions to the plant at Bladensburg, Pa., it is reported. The capacity of this plant has been increased from 40,000 to 60,000, according to a statement by Superintendent J. A. Boyd. Plant No. 1 has been rebuilt almost entirely after a complete dismantling. The rebuilding work was done by a company of employees under the supervision of Mr. Boyd.

PITTSBURGH DEMAND GOOD

In the fourth Federal Reserve district, which includes Pittsburgh, the demand for brick continues active. Much of the trouble caused by the coal strike has been overcome, says the Federal Reserve bank. Prices of common brick were only slightly affected by the coal shortage and the railroad strike. The source of the considerable supply of the brick orders has been in housing. While certain types of construction have been practically lost to the brick industry, the brick men have promise of replacing this market thru residence building.

With the exception of possibly one or two plants the paving brick industry is operating at near capacity. The fall rush is still in evidence and contractors are making efforts to complete jobs before the bad weather sets in. There are evidences that this work will continue for quite a while for many jobs have only recently been started.

"NATCO" SPENT HUGE SUMS ON PLANT BETTERMENT

The National Fire Proofing Co., Pittsburgh, Pa., has sufficient orders on its books to keep its plants running at 80 per cent. capacity thru 1923. The company is also booked into 1924. Earnings for the first nine months in 1922 are estimated at 50 per cent. above earnings in 1921.

Plants of the company as a whole are operating at about 80 per cent., but unless the car shortage is relieved curtailments will be necessary. As units the plants' operations vary from 100 to 40 per cent.



Bodies and bonnets high grade cast iron



—Double face solid wedge type.

—Bronze seat rings and cast iron gates, faced with bronze rings firmly secured—except in sizes in which wedges are made entirely of bronze.

—Disc cannot chatter when partially open, cannot touch seat except at point of final closing, because wedges have guides which are fitted to slide true and easy on ribs in body.

—Stationary or rising spindles. Valves can be repacked under pressure when wide open.

—Interchangeable parts.

All those are features contributing to the dependability of Jenkins Standard Iron Body Gate Valves. Know genuine by Jenkins Diamond and signature. Supply houses everywhere.

JENKINS BROS.

Fig. 325. Jenkins Standard Iron Body Gate Valve, screwed. New York Boston Philadelphia Chicago
Montreal London





HY-GRADE MANGANESE CO.
WOODSTOCK, VA.

Miner
and
Grinders

Especially Prepared
for Brick Making

Safety First!



No. 305
\$4.25 per Doz.
\$48 per Gross Pair



No. 300
\$7.80 per doz.
\$90 per Gross Pair

Cuts and bruises do not come to men who wear Des Moines Gloves and Pads. Fear does not hinder their work.

To any Clay Products Manufacturer who has not been using Des Moines Hand Pads, that will clip out the handpad shown here and mail it to us on his letter head we will send free a pair of Des Moines Mittens.

DO IT TODAY.

Des Moines Glove & Manufacturing Co.
508 Fourth St., Des Moines, Ia.

HAULS MORE LOADS AT LESS COST

The Minster offers you not only cheaper haulage but a saving in labor and time. The Minster is a guarantee of uninterrupted service.

Ask about the Minster, 2 to 8 ton capacities.

THE INDUSTRIAL EQUIPMENT COMPANY
510-516 Ohio St. Minster, Ohio

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The Herbert Crapster Co., Inc.,
1 Madison Ave., New York City



"MINSTER"
INDUSTRIAL LOCOMOTIVES

The company has broadened considerably during the past year and in that time several new plants have been built in various sections. The New Palestine, Ohio, plant, destroyed by fire, has been entirely rebuilt, and at present is operating at capacity, turning out 145 tons of fireproofing materials daily. This is the smallest of the company's Ohio group.

The Aultman plant, one of the largest fireproofing plants in the world, is seriously handicapped by car shortage. An official of the company stated this plant could use 25 cars a day. At Magnolia, Ohio, the fireproofing plant is in a similar position as that in Aultman, and the same is true of the plants at Waynesburg and East Canton, Ohio. All of these plants have either been rebuilt entirely or remodeled, and it is reported that the company has spent in excess of \$10,000,000 within the past 12 months on its various plants. At all of the plants additional kilns are being built.

WILL ELECTRIFY PLANT

Following a successful year's business for 1922, the El Paso (Tex.) Brick Co. is contemplating two big improvements to its plant. Electrification will be started on a small scale, proceeding with one unit at a time until the entire plant is run by electric power. It is probable that a wagon suspension bridge will be built across the Rio Grande from the plant to the smelter side of the stream, at a cost of about \$5,000.

WISCONSIN FREIGHT RATES LOWERED

Freight rates on brick shipped to points within Wisconsin were ordered lowered on September 29 by the railroad commission, to take effect immediately. The reductions bring rates down to slightly more than the level in force before the increase granted in 1918. The present rates range from 3.4 cents per 100 pounds for ten miles or under to 14 cents for 400 miles.

SHERIDAN PLANT AGAIN WORKING

After a shutdown lasting several months, the Sheridan (Wyo.) Press Brick & Tile Co. resumed operations upon receipt of a good sized order for brick. Operations will, in all probability, be continued thruout the winter as the outlook for building is good.

TORONTO TO HAVE NEW COMPANY

Riverdale Brick Co. Ltd., Toronto, has been incorporated with a capital of \$40,000 to manufacture brick, tile, and so forth. Incorporators include A. J. La Plante and R. J. Ormerod.

GETS ORDER FOR OVER 3,050,000 BRICK

The Don Valley Brick Works is delivering brick for the Riverdale Technical School, Toronto. This one order includes 2½ million wire cut, one-half million grey stock, 50,000 dressed enamel brick, besides a quantity of buff oriental brick.

QUEBEC ACCUSED OF "DUMPING" BRICK

Brick manufacturers of Quebec, Can., have been accused of shipping quantities of brick to America at less than their fair value and at less than the price of American manufacturers in the district affected.

Under the Anti-dumping Act, of 1921, which was incorporated in the emergency tariff law, provision is made for the levying of a special dumping duty equal to the difference between the importer's purchase price and the foreign market value when the purchase price is less than the foreign market value.

ARE OUR WINTERS GETTING WARMER?

W. F. Schaphorst, mechanical engineer, of Newark, N. J., has decided to settle, for the benefit of all those who have heavy coal bills to pay, the question: Are Our Winters Getting Warmer? He arrives at some rather startlingly large figures which it would take an experienced astronomer accustomed to dealing with sums of 12 or 15 figures to read. The upshot of his figuring is that it would take 54 times as much heat as it produced on earth every year to raise the temperature of the air one degree F. We have a faint suspicion that if Mr. Schaphorst continues to do figuring of this kind the temperature of the air around Newark will rise considerably more than one degree. However, here are his figures:

"We seldom give thought to the fact that we are all living in compressed air and that compressed air is absolutely necessary to our existence.

"Similarly, very few of us are aware of the tremendousness of this supply of air. I figured it out not long ago, and I stumbled upon it in this way: During the elegant fall of 1920 while I watched the thousands of automobiles rushing back and forth on the streets and avenues of New York City I said to myself, 'Surely, all of this burning gasoline must have an appreciable effect upon the temperature of the earth's atmosphere. Possibly this accounts for our excellent weather. Millions of tons of coal are burned all over the world every year. This coal develops an enormous total heat which is eventually absorbed by the air. Consequently the air is warmed. In addition, we have millions of cords of wood and millions of barrels of oil being burned every year. Doesn't it seem logical that all of this heat generated by combustion should make the atmosphere warmer? Does this probably account for the milder weather we are having this fall?'

"I decided to 'figure it out,' and so wrote three letters to the foremost authorities in the United States in the three respective fields—coal, oil and gas, and wood. The coal authority answered my inquiry as follows: 'Prof. L. C. Breckenridge last week in a paper presented before the American Society of Mechanical Engineers stated that in 1913, the last year for which complete statistics are available, the production of coal in all countries amounted to 1,382,000,000 tons. Heat content could probably be roughly averaged at 12,500 to 13,000 B. t. u. per pound.'

"Using these figures I compute the total heat values to be $1,382,000,000 \times 2,000 \times 12,750$ B. t. u. = 35,250,000,000,000,000 B. t. u.—total heat of coal absorbed by the earth's atmosphere every year.

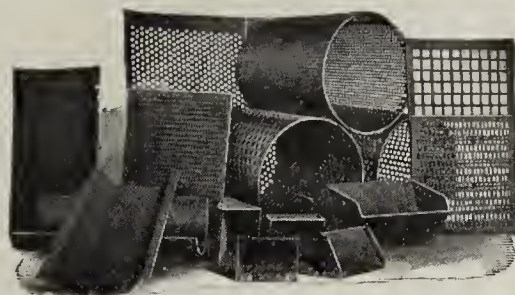
"The authority on gas replied as follows: 'The figures you ask for can be obtained, but not for any recent date. For example, the latest figures regarding the world's production of petroleum are for 1918, when there were produced 514,729,351 barrels, in the world. In 1919, the United States produced 377,719,000 barrels. Since the production has been increasing this year, the approximate production at the present time can be readily estimated, and the world production obtained from it.'

"In a recent address, Secretary Welch, of the American Petroleum Institute, stated that the present rate of oil consumption in this country is 625,000,000 barrels per year.

"The 1915 edition of Mineral Resources gives the world's production of natural gas as 650,789,669,000 cubic feet. This production has been increased considerably, and does not include all the producing fields we are certain. If we estimate a production of 720,000,000,000, with a heat value of 1,000 B. t. u.'s per cubic foot, we get 720,000,000,000,000 B. t. u.'s from natural gas per year.

"Assuming a world production of 600,000,000 barrels of oil of 42 gallons each, or 25,200,000,000 gallons, or 189,000,-

HENDRICK SCREENS FOR ALL PURPOSES



**ELEVATOR BUCKETS
CONVEYOR TROUGH and FLIGHTS
STACKS, TANKS,
GENERAL SHEET and
LIGHT STRUCTURAL WORK
LIGHT AND HEAVY STEEL
PLATE CONSTRUCTION**

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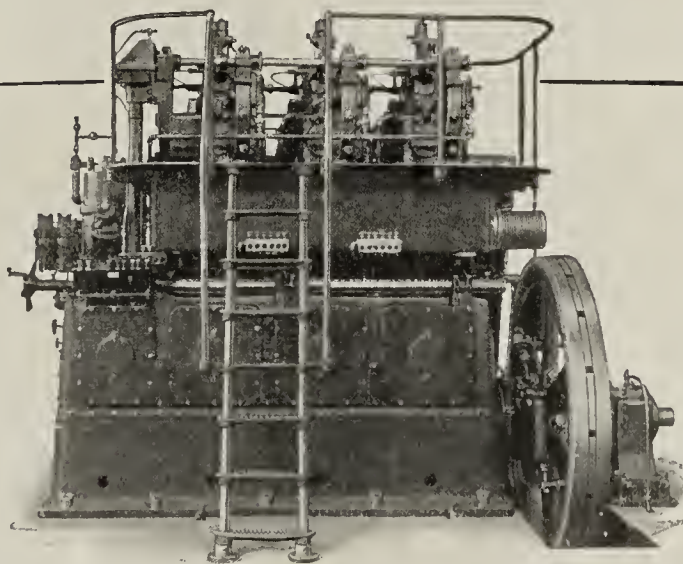
Economical Power—Efficient Operation—Convenient—Conservative—Complete—Easy to care for—Always ready and reliable.

This engine operates on cheap fuel oil. Fuel storage space decreased. A small amount of fuel makes a big amount of power.

*Send for new catalog, either vertical
or horizontal types furnished.*

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Bucyrus Ohio**

Formerly the American Clay Machy. Co.



Clay of High Value

in territory just 40 miles from

Pittsburgh

This is an ideal location to build that new plant. It is along the P. L. & W. R. which connects with both the Pennsylvania and Erie Systems.

Read the analysis:

Coal—No. 6	Clay—No. 3
Water.....2.200	Silica.....59.84
Volatile Matter.....35.540	Alumina.....25.96
Fixed Carbon.....54.705	Iron Oxide.....1.68
Sulphur.....1.725	Titanium Oxide.....1.60
Ash.....5.830	Magnesium Oxide.....1.08
	Sulphuric Anhy- dride.....Trace
	Alkali Oxides.....1.22
	Fusion Point.....3020° F.

Be sure and get full particulars in regard to the rich land if you contemplate building a new plant.

Write today

The Pittsburgh, Lisbon & Western R. R. Co.
Lisbon, - - - - - Ohio

In Making Your Plans for Plant Betterment—

take full advantage of the immense possibilities for increasing production and reducing costs which result from the adoption of the Electric drive. Our generators and motors have an excellent reputation for successful operation under the most severe conditions encountered in the Brick and Clay Industries.

Send for list of satisfied users.

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NEW YORK CLEVELAND PHILADELPHIA
PITTSBURGH DETROIT BUFFALO

Sales Agencies
CINCINNATI: UNDERWOOD ELECTRIC CO.
KANSAS CITY: W. T. OSBORN

000,000 lb., and assuming 18,500 B. t. u.'s per pound we get a total of 3,500,000,000,000,000 making a total of 4,220,000,000,000,000 B. t. u.'s.

"We would not care to be quoted upon the accuracy of these figures, but we can realize the difficulty of securing any authoritative report at the present time on foreign production of oil or natural gas.

"The authority on wood wrote: 'The people of the United States use 100,000,000 cords of fuel wood a year, according to Pierson's estimate published ten years ago. The cord is supposed to contain 128 cu. ft., but really it is not more than 90 cu. ft. As to the wood for fuel in the rest of the world, it is anybody's guess. Our guess is that, per capita, it is not more than one-fifth as much as in the United States. That would foot up, for fuel, 100,000,000 cords per year in this country and 280,000,000 cords in the rest of the world, or a grand total of 380,000,000 cords.

"If the estimate is to include lumber, pulpwood, poles, railroad ties and all other products made of wood, the estimate for the United States should be doubled, totaling 200,000,000 cords. It seems reasonable that the estimate for the rest of the world should be doubled also, to include all forest products, or a total of 560,000,000 cords. Adding for the grand total of all forest products for the world, the result is 760,000,000 cords.

"That may be within 50 per cent. of the actual amount, but who can say whether it is above or below? It is well known that the people of this country use more wood per capita than those of most other countries. The above total is based on the assumption that, per capita, we use four times as much as the rest of the world.'

"Now, paper No. 98, of a series of technical notes issued by the Forest Products Laboratory, U. S. Forest Service, Madison, Wis., says: 'A ton of coal may be taken as the equivalent in heating value of one cord of heavy wood, 1½ cords of medium-weight wood, or two cords of light wood.'

"Assuming that the average is 'medium-weight' we have an equivalent of $760,000,000 + 1\frac{1}{2} = 506,000,000$ tons of coal, or $506,000,000 \times 2,000 \times 12,750$ B. t. u. = 12,900,000,000,000,000 B. t. u.'s.

World's Total Heat

"Adding our three totals of coal, oil and gas, and wood, we now get the 'world's total heat' generated per year as follows:

Coal	35,250,000,000,000,000 B. t. u.'s
Oil and Gas	4,220,000,000,000,000 B. t. u.'s
Wood	12,900,000,000,000,000 B. t. u.'s

World's total .. 52,370,000,000,000,000 B. t. u.'s

How Much Air Is There?

"This is a comparatively easy question to answer. It is easier to answer than 'What is the total heat generated per year?' The quantity of air can be computed with far greater accuracy because it is known that the pressure of air on every square inch of the earth's surface is very close to 14.7 pounds per square inch. It is thus merely a matter of determining the area of the surface of the earth in square inches and multiplying by 14.7. This product will be the total pounds of air. The area of the earth's surface in square inches is equal to $3.1416 d^2$; where d = the diameter in inches.

"The diameter, usually given as 8,000 miles, equals 42,200,000 feet equals 507,000,000 inches.

Area = $3.1416 \times 507,000,000 \times 507,000,000 = 807,000,000,000,000,000$ square inches.

Multiplying this by 14.7 we get 11,850,000,000,000,000,000 pounds of air.

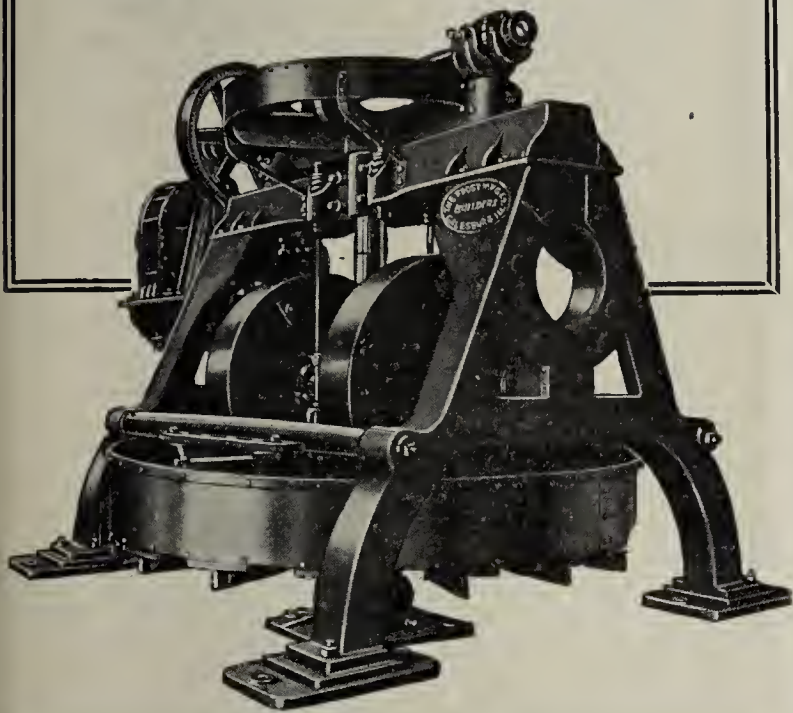
The "Answer"

"Now that we have the total heat and the total weight of air and knowing that 0.2375 B. t. u. will raise the temperature

BETTER QUALITY WARE

That is the result when Frost
Dry Pans are put on the job.

THE FROST MFG. CO.
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FUEL OIL BURNERS

will burn any grade of fuel oil, producing greater and quicker heat with safety and perfect flame control. Non-clogging. Assures increased output of ware—reduction of burning time—and cut in costs.

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Fuel Oil Engineering Co., Cincinnati, Ohio

*Estimates furnished on
Complete Installations*



DELIVERY END OF HURRICANE AUTOMATIC STOVE ROOM

"Hurricane" Automatic Stove Rooms represent efficiency in drying methods.

These machines produce finished ware of best quality. The ware is carried through the machine on trays fastened to an endless conveyor chain which travels between coils of steam pipe. The drying is accomplished by the recirculation of large volumes of heated air.

Shall we send you our new folder on modern Ceramic Drying Methods, or have an engineer to call and go over your particular problem with you?



235

**The Philadelphia
Drying Machinery Company**

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Philadelphia, Pa.

Western Office: 1814 Continental Bank Building, Chicago

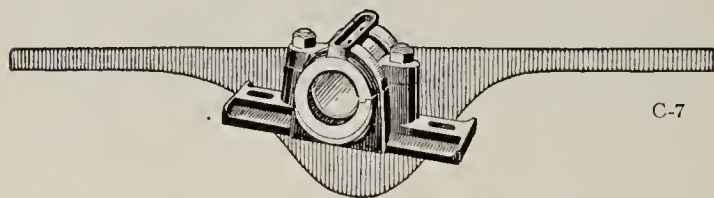
TRANSMISSION MACHINERY

THE Caldwell line is complete. Bearings—heavy, properly designed and well finished. Pulleys of ample weight and accurately turned. The entire line has achieved outstanding recognition under hard service. Let us figure on your requirements.

H. W. CALDWELL & SON CO. Link-Belt Company, Owner

Dallas, Texas, 709 Main St.—Chicago, 17th St. and Western Ave.—New York, Woolworth Bldg.

CALDWELL



Increase the value of your product by improving
the color with

LAVINO BRAZILIAN MANGANESE

"Best for Face Brick"

Economical
Adaptable to any Clay
Intense Staining Powers
Various Effects Obtainable
Uniform Analytically and Physically

Liberal samples and full information
gladly furnished upon request.

E. J. LAVINO and COMPANY

Bullitt Building Philadelphia, Pa.

Grinding Plant: Plymouth Meeting, Pa.

of one pound of air one degree Fahrenheit we get this:

$52,370,000,000,000,000$, B. t. u. $+0.2375=220,000,000,000,000,000$ —the number of pounds of air whose temperature would be increased "one degree" by the total heat.

"However, we have found that there is MUCH MORE air in the world than 220,000,000,000,000,000 pounds. There are 11,850,000,000,000,000,000 pounds, the latter figure being 54 times the other.

"In other words all of the heat produced on earth per year will increase the temperature of our atmosphere only $1\frac{1}{54}$ of one degree. Or, again, in other words, it would take 54 years for all of the heat applied at the same rate every year to raise the temperature of our atmosphere one degree.

"Quite a lot of air in this world of ours, isn't there?"

Machinery and Equipment

Devices and Methods, New and Old Concerning Which Information of Interest to the Clay Manufacturer Is Published

METAL CONVEYOR IMPORTED FROM SWEDEN

Northern Europe has sent us a new type of conveyor belt. This is the metal belt made by the Sandvik Steel Works Co., Ltd., which was founded in 1862 and which today is one of the largest manufacturers of all varieties of cold rolled steel in the world. This plant specializes in rolling broad steel bands of considerable length, and will supply steel belt in one piece lengths of from 250 to 325 feet and in varying width. The thickness varies from 0.8 to 1 mm. The flexibility and dense hard surface provide the elastic and wear-resisting qualities so essential in a conveyor band.

In Europe these belts successfully handle sugar, fats, sand, cement, clinker, wood, coal, ore and clay. They have been found especially serviceable for conveying materials that are damp or wet and have rough sharp cutting edges. These two features are especially attractive from the standpoint of the clay products manufacturer. A simple drag scraper replaces the usual type of tripper, and one additional advantage is that part of the load can be dumped at one point and the rest taken on to another unloading point.

The rollers, pulleys and attachments for using metal belts are practically the same as in use today for fabric belts. This metal belt is manufactured in Sweden and sold by Sandvik Steel, Inc., with an office at 233 Broadway in the Woolworth Building, New York. Altho introduced into this country only a short time, several installations in the clay products and other industries have been made.



KILN LEAKAGE LOSSES CAN BE AVOIDED

Many kilns in the clay products industry are a source of waste and loss for their operators, because of leaks thru the brick work. Very frequently soft ware in a certain spot of a kiln, burn after burn is a sure indication that cold air filters thru the joints of the wall. This is a dead loss in quality of ware and also a dead loss in fuel as more is consumed in the attempt to produce the proper degree of heat. At other times a deposit of soot or smoke at or near a joint in the walls or crown of a kiln is a positive indication that part of the fuel is being wasted thru that crack.

With the high price of coal or other fuel at the present time and the knowledge that one-third of the cost of producing clay products is taken up by the burning operation, it is imperative that every possible safeguard for this loss be used.



Wilson-Maeulen Pyrometers

afford the best combination of—
ACCURACY
DURABILITY
SIMPLICITY

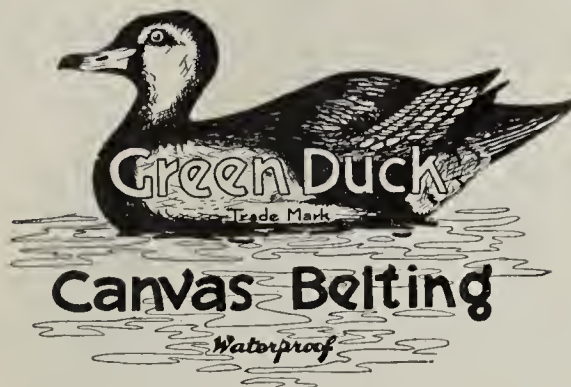
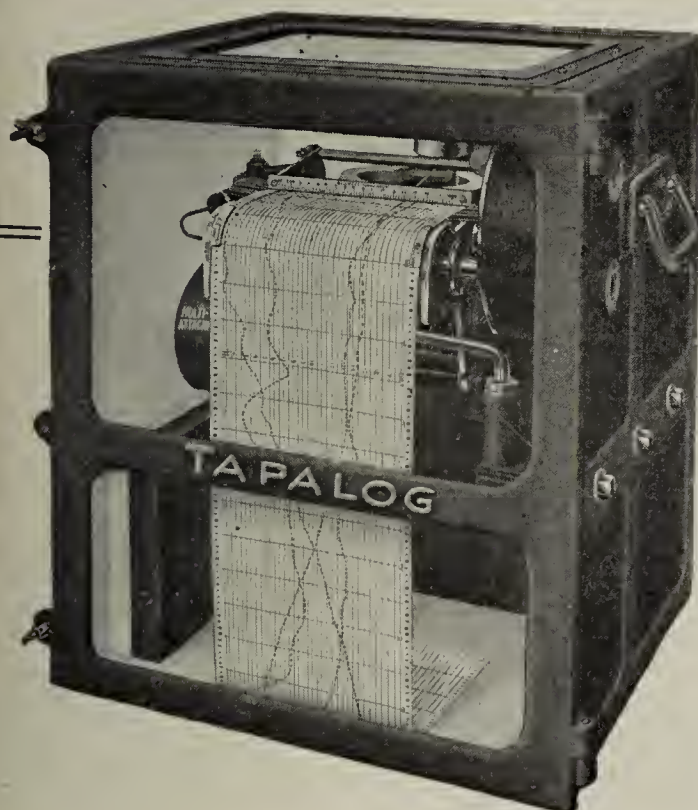
for all types of kilns.

Reliable Pyrometer Equipment is absolutely essential in cutting the costs of fuel, time, and labor to a minimum in burning clay ware. When you install WILSON-MAEULEN pyrometers and "TAPALOG" you don't have to worry one bit as to whether you are really doing this. The "TAPALOG" registers six kilns at a time in six different colors, day and night, giving clear and distinct time temperature curves. The firemen know this, and pay closer attention to kilns—fire oftener, making more heat, faster burns, and using less coal.

Wilson-Maeulen Co. have equipped some of the largest brick plants in the world with complete success in every case. And the same care is taken on small installations.

*Write our Engineering Dept. for advice
and estimates. No obligation.*

WILSON-MAEULEN CO.
738 E. 143rd St. New York



17 Years' Service

Sand and gravel are harder than clay. Yet one GREEN DUCK CONVEYOR BELT conveyed 1,500,000 tons for the Ohio Gravel Ballast Company.

What is your daily tonnage of clay? Suppose it is 300 tons, and you operate 300 days in a year. It would take 17 years to handle 1,500,000 tons of raw clay, and your GREEN DUCK CONVEYOR BELT would be on the job day and night.

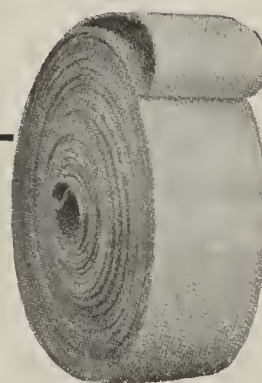
GET ACQUAINTED WITH GREEN DUCK BELTING

now by sending for a sample. Made as heavy as 10-ply, as wide as 60 inches, and as long as 1,000 feet. Only the best grade of Duck is used.

LET US QUOTE YOU NOW


The Allied Belting Co.

GREENVILLE, OHIO



You save
"Green
Backs"

When you
buy
Green
Duck




Like Burning Money

MEN who depend upon guess work to maintain uniformly correct kiln temperatures might just as well burn the money invested in good material, fuel and labor. Their only sure way to secure quality wares is to know definitely during every stage of production what is going on in the kilns. The use of Thwing Pyrometers provides a dependable index to kiln temperatures—enabling burners to regulate their work and secure uniformly good results—always.

Thwing Pyrometers indicate and record temperatures of every burn from the lighting of the fires until the burn is completed. They cut hours off the burning period and materially reduces the number of off-burns. The Standard Brick Company of Charleston, W. Va., for example cut 38 hours off their burning period and cut down the water smoking 20 hours!

Thwing Instrument Company
3347 Lancaster Ave.,
Philadelphia U. S. A.



Thwing

PYROMETERS

108

The S. Obermayer Co., of Chicago, has lately put on the market a plastic high temperature cement which can be used profitably as a wash or paste on the inside of kiln walls and crowns to insure them against these losses from infiltration of cold air and leakage of fuel. The cost is very low when compared to the savings effected.

* * *

THE BUILDING SITUATION

(Continued from Page 709)

by the continual scarcity of skilled labor in the building trades. In the South Jersey district, the shortage is still more acute, leading to a rate of from \$25 to \$30 a day for bricklayers on certain jobs offering bonuses at Atlantic City; carpenters are securing \$1.50 an hour here regularly, with \$3 an hour for overtime.

Philadelphia

October construction at Philadelphia brought a new high record, with 2,037 operations, according to the figures of the building bureau, with estimated cost of \$9,876,025. The bulk of work continues in the line of dwellings, which rounded out \$4,300,000 of the aggregate noted for the month, and of this amount, two-story brick dwellings reached \$3,752,000. The first ten months of the year in the Quaker City have developed a total building record of \$95,497,000, as compared with the sum of \$61,574,000 in the corresponding period of last year.

Brick producers at Philadelphia are feeling the prosperity that is now prevalent in the local industry. All yards are running at capacity, with orders ahead for a number of weeks to come. Some of the manufacturers are refusing orders that call for delivery prior to January 1.

Pittsburgh construction produced a total of \$2,508,500 during October, covered by 561 individual permits, according to the records of the local building department. This is appreciably lower than for the same month of a year ago, which aggregated \$4,134,978.

Baltimore

Activities at Baltimore are holding well to the \$3,000,000 to \$4,000,000 construction level monthly which has been prevailing for some time past. October figures are above the \$3,500,000 mark, making a ten-months' building total here of approximately \$34,500,000. Two-story brick dwellings are helping materially to bring the high averages, and many blocks of such structures are now in course of erection in different parts of the city.

Washington

The capitol city is maintaining active progress in the erection of new buildings, with apartment and dwelling work holding the lead. The September work attained a total of \$4,900,000, and which was practically duplicated in October. With more than \$40,000,000 as the construction record for the first ten months of the year, 1922 is expected to round out at close to \$50,000,000 for operations of all kinds.

Columbus

The report of the Columbus building department for the month of October, 1922, showed a total of 547 permits issued for structures estimated to cost \$2,788,600 as compared with 423 permits and a valuation of \$687,355 in October of last year. Since the first of the year the department issued 5,114 permits having a valuation of \$16,604,800 as compared with 4,211 permits and a valuation of \$8,244,530 in the corresponding period last year. During October a total of 131 dwellings were licensed as compared with 87 in October of last year while 1,547 dwellings were licensed in the 10 months just past as compared with 915 last year covering the same period.

ATLAS EXPLOSIVES

USED ON BIG JOBS EVERYWHERE



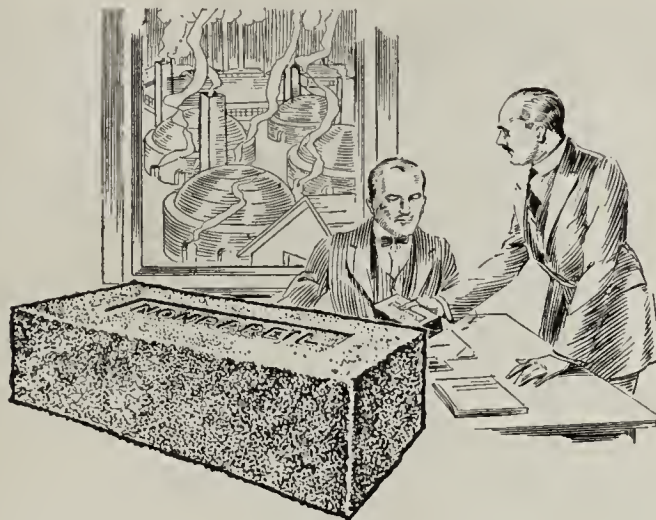
If Atlas chemists think it worth while to make "A Proper Explosive for Every Blasting Requirement," then it is good business for any one using explosives to make sure he is employing the **ONE** grade that is best suited to the work. To help you in selecting the **RIGHT** grade for your requirements is a feature of Atlas coöperation that goes with the use of Atlas Explosives. Write us today about this service.

ATLAS POWDER COMPANY
WILMINGTON, DEL.

Branch Offices: — Allentown, Pa.; Birmingham, Ala.; Boston; Chicago; Houghton, Mich.; Joplin, Mo.; Kansas City; Knoxville; McAlester, Okla.; Mexico City, Mexico; New Orleans; New York; Philadelphia; Pittsburg, Kans.; Pittsburgh, Pa.; Pottsville, Pa.; St. Louis; Wilkes-Barre.



A PROPER EXPLOSIVE FOR EVERY BLASTING REQUIREMENT



Some Facts about Insulated Kilns

WHETHER you will insulate your kilns is up to you, but before you decide, consider these facts:

Kilns insulated with Nonpareil Brick lose about two-thirds *less* radiated heat than uninsulated kilns. That means a fuel saving of 10% to 15% or more — enough to pay for the insulation in less than a year.

Kilns insulated with Nonpareil Brick maintain more constant and accurately controlled temperatures.

Kilns insulated with Nonpareil Brick can be brought to working heat in much shorter time.

Kilns insulated with Nonpareil Brick have proved their economy in many of the best designed and operated plants in the country.

These are some of the facts. Others, more specific, with actual operating records are contained in the 72-page book, "Nonpareil Insulating Brick." Write for it and a sample brick. No charge.

Armstrong Cork & Insulation Co.
149 Twenty-Fourth Street, Pittsburgh, Pa.

Also manufacturers of Nonpareil High Pressure Covering for steam lines, feed water heaters, etc.; Nonpareil Cork Covering for drinking water systems, brine and ammonia lines and cold pipes and tanks generally; Nonpareil Corkboard Insulation for cold storage rooms; Nonpareil Cork Machinery Isolation for noisy machines, and Linotile and Armstrong's Cork Tile for floors in offices, residences, etc.

Nonpareil Insulating Brick

For Kilns, Boiler Settings, Etc.



The Brickmaker's Friend

It would be a difficult matter to find a more fitting name to apply to Standard Ball-bearing Roller Brick Conveyors.

These sectional, untiring, ever ready conveyors have been tried and never found wanting in times of need.

Unlike the usual portable power driven mechanical contrivances, they never endeavor to shirk a day's or even a portion of a day's work by pleading, "out of order."

Operated by a perpetual power, GRAVITY, the sensitive ball-bearing rollers respond instantly and freely to the pressure of the load, and riding friction free, brick and all clay products are transported from car to pile or vice versa.

Our representative in your territory will gladly call and show you how effectively a few sections of these time- and labor-saving conveyors will operate in your yard.

Write Today

STANDARD
CONVEYOR COMPANY

NORTH ST. PAUL, MINN.

New York
227 Fulton St.
Milwaukee
601 Security Bldg.

Chicago
549 W. Washington St.
Cleveland, O.
1108 Hippodrome Bldg.

Representatives in all principal cities

Chicago

19,512 new homes have been built in Chicago in the first ten months, including October. Construction activities during October did not slow up but piled up totals \$2,733,000 greater than the previous month of September. Instead of showing the usual seasonal decline building in October was one of the city's largest months, with a total of \$14,996,150. Residences and apartments made up by far the greater bulk of the work. Comparison with figures of a month ago and a year ago shows the following:

Permits	Oct., '21	Sept., '22	Oct., '22
Apartments	221	241	290
Residences	458	494	561
Industrials	147	134	176
Miscellaneous	50	55	76
Totals	876	924	1,103
Frontage	26,481	28,067	34,794
Value	\$10,572,250	\$12,263,100	\$14,996,150

Atlanta

The month of October at Atlanta, Ga., brought a new high record in the history of the local building department, rounding out \$2,600,000. The September figures stood at \$2,320,000, which was a record at that time for monthly operations. In September of a year ago, the work reached but \$916,000.

Birmingham

The official report of the Birmingham, Ala., building inspector shows that building operations in that city for the first six months of the present year were \$992,045 greater than for the first six months of the year 1921.

For the first six months of the present year the building operations begun in Birmingham amounted to \$5,511,183.50. This includes 3,763 buildings. For the first six months of the year 1921, the building permits showed \$4,519,138 and included 3,916 buildings.

The residences constructed during the present year show an increase and amounted to \$2,342,185 as compared with \$2,272,466 for the year 1921.

Memphis

The monthly report of Dan C. Newton, Building Inspector of Memphis, Tenn., submitted to Commissioner Horace Johnson, shows 411 permits issued in October at a total valuation of \$2,178,820. This is an increase both in number and valuation over October, 1921, when with 302 permits the total valuation was \$921,540. Even eliminating the largest item in October, 1922, \$1,000,000 for the Tri-State Hotel, October this year is still in excess of October last year by around a quarter of a million. Permits for 119 dwellings were issued.

Los Angeles

The total of building permits issued in Los Angeles during the current year has already exceeded \$100,000,000. The tremendous growth in building activity in this city is shown by the figures for the past four years. In 1919, 13,344 permits reached a total valuation of \$28,253,619; in 1920 the figures jumped to 25,555 permits with a valuation of \$60,023,600; last year 37,000 permits were issued with a valuation of \$82,761,386. In the first ten months of 1922, more than 40,000 permits have been issued with a valuation of \$100,000,000.

✻ ✻ ✻

FORM COMPANY WITH \$100,000

Lake Erie Brick & Tile Co. Ltd., Leamington, Ont., has been incorporated by G. H. Awrey, J. P. Dranfield and others, with a capital of \$100,000, to manufacture brick and tile.

Leading Clay Journal of the World.

BRICK *and* CLAY RECORD

Established 1892. Now in its thirtieth year.

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Member of Audit Bureau of Circulations.

Subscriptions: One Year (26 Numbers), United States, \$3.00;
Foreign, \$4.00; Single Copies, 25 Cents.

Published Every Other Tuesday by

Industrial Publications, Inc., 407 S. Dearborn St., Chicago.

Telephone Harrison 9462

NEW YORK

CLEVELAND

KANSAS CITY

November 28, 1922

Vol. 61, No. 11

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SERVICE is practically the only motive which a business paper has for existing. The columns of each issue naturally offer the greatest opportunity for help, but besides the information contained therein, nearly all business publications give service in the nature of counsel on industrial problems. They are able to do this because of their wide acquaintance and experience in the field, which they can draw upon for suggestions.

To the outside public, nearly all of the activities of an industrial publication, such as spreading of information, aiding development of industry, promoting its interests, providing a clearing house for trade ideas, performing an economic service, are largely invisible. It is seen that they are many and varied. Most readers of the leading and clean-cut industrial papers are aware of the influence for good that their business papers have. It is true that just as in every other kind of business, there are also some business papers that do not live up to the best reputation of the industrial press. However, like in most other businesses, these are few when compared to the industrial press as a whole.

A recent writer in a weekly magazine that circulates among authors and journalists said, "The trade press in this country is the most powerful and high-minded journalism we have. It is the voice of America's industrial and business progress. No room there for padding and theory — no place for pretty phrases and quotations. Writing for the trade papers these days is the best form of influence that a writer can wield. There is no greater opportunity for service to humanity and your country."

That the industrial press is to American business what the church and school are to American spiritual and cultural life is very obvious to leaders of industry.

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What and Where to Buy

A classified list for the convenience of readers of machinery, equipment and supplies used in the manufacture of clay products. Index to advertisements will give you page number of any advertiser, and by referring to advertisement you can get full particulars about products and addresses. If you don't find what you want, write us and we will tell you where to get it.

Air Receivers. Frost Manufacturing Co.	Link-Belt Company. Manufacturers Equipment Co. New York Belting and Packing Co.	Cars. Atlas Car & Mfg. Co. Chase Fdry. & Mfg. Co. Clark Tractor Co. Fate-Root-Heath Co. Hadfield-Penfield Steel Co. Hendrick Manufacturing Co. International Clay Machy. Co. Lancaster Iron Works, Inc. Manufacturers Equipment Co. Robinson, Frank H. Steele & Sons, J. C. Wellington Machine Co. Weston, C. J.	Clay Screens. Harrington & King Perf. Co. Hendrick Mfg. Co. Louisville Machine Mfg. Co. Manufacturers Equipment Co. Robinson, Frank H. Tyler Co., W. S.	Toronto Fdry. & Mach. Co. Webster Mfg. Co. Wellington Machine Co. Williams Patent Crusher and Pulv. Co.	Doors and Frames. Manufacturers Equipment Co. Wellington Machine Co.
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Automatic Stove Rooms. Proctor & Schwartz.	Boilers. (See Engines and Boilers.) Frost Manufacturing Co.	Chain. Caldwell & Son Co., H. W. Link-Belt Company. Morse Chain Co. Webster Mfg. Co. Wellington Machine Co.	Coal Unloaders. Galion Iron Works. Manufacturers Equipment Co.	Digging Machinery. Ball Engine Co. Bay City Dredge Works. Bucyrus Company. Erie Steam Shovel Co. Hadfield-Penfield Steel Co. Link-Belt Company. Marion Steam Shovel Co. Schofield-Burkett Cons. Co. Thew Shovel Co.	Dryers. American Blower Co. Bonnot Co. Crossley Machine Co. Fate-Root-Heath Co. Hadfield-Penfield Steel Co. International Clay Machy. Co. Lancaster Iron Works, Inc. Manufacturers Equipment Co. Philadelphia Drying Machinery Co. Proctor & Schwartz, Inc. Robinson, Frank H. Steele & Sons, J. C. Wellington Machine Co.
Barium Carbonate. Anderson, Chas. J. Roessler Hasslacher Chem. Co.	Boiler Insulation. Armstrong Cork & Insulation Co. Celite Products Co.	Chains (Oiling). Morse Chain Co.	Conveying Machinery. (Also see Elevators and Conveyors.) Crossley Machine Co. International Clay Machy. Co. Manufacturers Equipment Co. Link-Belt Company. Mueller Machine Co., Inc. Potts & Co., C. & G. Wellington Machine Co.	Dryers (Sand). Bonnot Co. Fate-Root-Heath Co. Hadfield-Penfield Steel Co. Lancaster Iron Works, Inc. Stevenson Co. Wellington Machine Co.	Dry Pans. Bonnot Co. Chambers Bros. Co. Eagle Iron Works. Fate-Root-Heath Co. Freese & Co., E. M. Frost Manufacturing Co. Hadfield-Penfield Steel Co. International Clay Machy. Co. Lancaster Iron Works, Inc. Manufacturers Equipment Co. Mueller Machine Co., Inc. Robinson, Frank H. Stevenson Co. Toronto Fdry. & Mach. Co.
Barrows and Trucks. Bonnot Co. Chambers Bros. Co. Clark Tractor Co. Fate-Root-Heath Co. Freese & Co., E. M. Hadfield-Penfield Steel Co. International Clay Machy. Co. Lancaster Iron Works, Inc. Manufacturers Equipment Co. Potts & Co., C. & G. Robinson, Frank H. Steele & Sons, J. C. Toronto Fdry. & Mach. Co. Wellington Machine Co.	Brick Conveyors. Bonnot Co. Chambers Bros. Co. Link-Belt Company. Manufacturers Equipment Co. Mathews Gravity Carrier Co. Potts & Co., C. & G.	Chains, Silent (Rocker Joint). Morse Chain Co.	Conveyors (Portable). Lancaster Iron Works, Inc. Link-Belt Company. Louisville Machine Mfg. Co.	Disintegrators. Bonnot Co. Chambers Bros. Co. Crossley Machine Co. Fate-Root-Heath Co. Freese & Co., E. M. Hadfield-Penfield Steel Co. International Clay Machy. Co. Lancaster Iron Works, Inc. Manufacturers Equipment Co. Marion M., Fdry. & Sup. Co. Mueller Machine Co., Inc. Potts & Co., C. & G. Robinson, Frank H. Steele & Sons, J. C. Wellington Machine Co.	Dynamometers and Generators. Burke Electric Co. Westinghouse El. & Mfg. Co.
Barytes, Carbonate of. Roessler Hasslacher Chem. Co.	Brick Handling Machinery. Hadfield-Penfield Steel Co. Link-Belt Company. Mathews Gravity Carrier Co. Wellington Machine Co.	Clamshells. Link-Belt Company.	Couplings (Shaft and Friction). Link-Belt Company. Webster Mfg. Co. Wellington Machine Co.	Ditching Machines. Ball Engine Co. Bay City Dredge Works. Buckeye Traction Ditcher Co. Bucyrus Company. Erie Steam Shovel Co. Thew Shovel Co.	Electric Furnaces. Brown Instrument Co.
Bearings. Caldwell & Son Co., H. W. Dodge Sales & Engineering Co. International Clay Machy. Co. Link-Belt Company. Robinson, Frank H. Webster Mfg. Co. Wellington Machine Co.	Brick (Insulating). Celite Products Co.	Clay Conveyors. Manufacturers Equipment Co. Webster Mfg. Co. Wellington Machine Co.	Cranes, Locomotive. Ball Engine Co. Bucyrus Company. Erie Steam Shovel Co. Link-Belt Company. Thew Shovel Co.		
Belting. Allied Belting Co. Gandy Belting Co. Goodyear Tire & Rubber Co. Main Belting Co. New York Belting and Packing Co. Quaker City Rubber Co. Wellington Machine Co.	Brick (Ornamental). Louisville Machine Mfg. Co.	Clay Feeders and Mixers. Bonnot Co. Fate-Root-Heath Co. Chambers Bros. Co. Freese & Co., E. M. Hadfield-Penfield Steel Co. International Clay Machy. Co. Lancaster Iron Works, Inc. Manufacturers Equipment Co. Marion Machy. Fdry. & Sup. Co. Potts & Co., C. & G. Robinson, Frank H. Schaffer Engineer & Equip. Co. Steele & Sons, J. C. Stevenson Co. Wellington Machine Co.	Critical Point Determinations. Brown Instrument Co.		
Belting (Elevator). New York Belting and Packing Co.	Burnishing System. International Clay Machy. Co. Manufacturers Equipment Co.	Clay Gatherers. Eagle Iron Works. Schofield-Burkett Cons. Co.	Crushers and Pulverizers. Bonnot Co. Chambers Bros. Co. Fate-Root-Heath Co. Freese & Co., E. M. Frost Manufacturing Co. Hadfield-Penfield Steel Co. International Clay Machy. Co. Lancaster Iron Works, Inc. Manufacturers Equipment Co. Mueller Machine Co., Inc. Robinson, Frank H. Stevenson Co.		
Belting, Silent Chain. Link-Belt Company. Morse Chain Co.	Cables. Robinson, Frank H.				
Belt Conveyors. Allied Belting Co. Caldwell & Son Co., H. W. Gandy Belting Co. Goodyear Tire & Rubber Co. Hadfield-Penfield Steel Co. International Clay Machy. Co. Lancaster Iron Works, Inc.	Cable Conveyors. Caldwell & Son Co., H. W. Lancaster Iron Works, Inc. Wellington Machine Co.				
	Carbonate of Barytes. Roessler Hasslacher Chem. Co.				
	Car Counter. Robinson, Frank H.				

Elevators and Conveyors.

Bonnot Co.
Caldwell & Son Co., H. W.
Chambers Bros. Co.
Fate-Root-Heath Co.
Freese & Co., E. M.
Gandy Belting Co.
Goodyear Tire & Rubber Co.
Hadfield-Penfield Steel Co.
International Clay Mch. Co.
Lancaster Iron Works, Inc.
Link-Belt Company.
Louisville Machine Mfg. Co.
Main Belting Co.
Manufacturers Equipment Co.
Mathews Gravity Carrier Co.
Quaker City Rubber Co.
Robinson, Frank H.
Stevenson Co.
Toronto Fdry. & Mach. Co.
Webster Mfg. Co.
Wellington Machine Co.

Engines.

Valler Crow.
Toppin & Co., C. A.
Manufacturers Equipment Co.
Schaffer Engineering & Equipment Co., The.

Engines and Boilers.

American Blower Co.
Bonnot Co.
Crossley Machine Co.
Freese & Co., E. M.
Frost Manufacturing Co.
Hadfield-Penfield Steel Co.
International Clay Mch. Co.
Manufacturers Equipment Co.
Robinson, Frank H.
Wellington Machine Co.

Engines (Oil).

Hadfield-Penfield Steel Co.
Wellington Machine Co.

Excavating Machinery.

Bay City Dredge Works.
Bucyrus Company.
Erie Steam Shovel Co.
Link-Belt Company.
Schofield-Burkett Cons. Co.
Thew Shovel Co.

Excavators, Ditch and Trench.

Bay City Dredge Works.
Buckeye Traction Ditcher Co.
Bucyrus Company.
Erie Steam Shovel Co.
Thew Shovel Co.

Excavators, Dragline.

Bucyrus Company.
Erie Steam Shovel Co.
Link-Belt Company.
Schofield-Burkett Cons. Co.
Steele & Sons, J. C.
Thew Shovel Co.

Exhausters.

American Blower Co.

Explosives.

Atlas Powder Co.

Fans.

American Blower Co.
Bonnot Co.
Freese & Co., E. M.
Hadfield-Penfield Steel Co.
Manufacturers Equipment Co.
Robinson, Frank H.

Feed Water Heaters.

Canton Grate Co.
Freese & Co., E. M.
Frost Manufacturing Co.

Filter Presses.

Bonnot Co.
Crossley Machine Co.
Hadfield-Penfield Steel Co.
International Clay Mch. Co.
Mueller Machine Co., Inc.

Flue Cleaners.

Marion Mach., Fdy. & Sup. Co.

Fireproofing.

Louisville Machine Mfg. Co.

Friction Clutches.

Caldwell Co., W. E.
Crossley Machine Co.
Dodge Sales & Eng. Co.
International Clay Mch. Co.
Link-Belt Company.
Webster Mfg. Co.

Frogs and Switches.

International Clay Mch. Co.
Robinson, Frank H.
Toronto Fdry. & Mach.

Furnace Insulation.

Armstrong Cork & Insulation Co.
Celite Products Co.
Wellington Machine Co.

Gas Producers.

International Clay Mch. Co.
Manufacturers Equipment Co.

Gauges (Vacuum, Pressure and U).

Bristol Company, The.
Brown Instrument Co.

Gears.

Caldwell Co., W. E.
Caldwell & Son Co., H. W.
Crossley Machine Co.
Dodge Sales & Eng. Co.
Link-Belt Company.
Morse Chain Co.
Nuttall Co., R. D.
Webster Mfg. Co.

Gloves.

Des Moines Glove & Mfg. Co.

Granulators.

Bonnot Co.
Chambers Bros. Co.
Fate-Root-Heath Co.
Freese & Co., E. M.
Hadfield-Penfield Steel Co.
International Clay Mch. Co.
Lancaster Iron Works, Inc.
Manufacturers Equipment Co.
Steele & Sons, J. C.
Toronto Fdry. & Mach. Co.
Wellington Machine Co.

Grates and Grate Bars.

Canton Grate Co.
Crossley Machine Co.
Electric Steel Castings Co.
Frost Manufacturing Co.
Hadfield-Penfield Steel Co.
International Clay Mch. Co.
Lancaster Iron Works, Inc.
Manufacturers Equipment Co.
Marion Mach., Fdy. & S. Co.
Robinson, Frank H.
Toronto Fdry. & Mach. Co.
Wellington Machine Co.

Gravity Carriers.

Mathews Gravity Carrier Co.

Heat Insulation.

Armstrong Cork & Insulation Co.
Celite Products Co.

Heat Treating Furnaces.

Brown Instrument Co.

Hoists.

Bonnot Co.
Chambers Bros. Co.
Fate-Root-Heath Co.
Hadfield-Penfield Steel Co.
International Clay Mch. Co.
Lancaster Iron Works, Inc.
Link-Belt Company.
Louisville Machine Mfg. Co.
Manufacturers Equipment Co.
Wellington Machine Co.

Hollow Brick Machinery.

Bonnot Co.
Chambers Bros. Co.
Fate-Root-Heath Co.
Freese & Co., E. M.
Hadfield-Penfield Steel Co.
International Clay Mch. Co.
Manufacturers Equipment Co.
Robinson, Frank H.
Steele & Sons, J. C.
Stevensnn Co.

Hose.

New York Belting and Packing Co.
Quaker City Rubber Co.

Hydrometers or Moisture Indicators.

Lancaster Iron Works, Inc.
Manufacturers Equipment Co.

Instruments, Scientific.

Brown Instrument Co.

Insulating Materials (Heat).

Armstrong Cork & Insulation Co.

Kilns.

American Dresser Tunnel Kilns, Inc.
Chambers Bros. Co.
Fate-Root-Heath Co.
Hadfield-Penfield Steel Co.
International Clay Mch. Co.
Manufacturers Equipment Co.
Minter System.
Schaffer Eng. & Equip. Co.

Kiln Accessories.

Caldwell Co., Inc., W. E.
Fate-Root-Heath Co.
Hadfield-Penfield Steel Co.
International Clay Mch. Co.
Lancaster Iron Works, Inc.
Manufacturers Equipment Co.
Robinson, Frank H.
Wellington Machine Co.

Kiln Bandings.

International Clay Mch. Co.
Robinson, Frank H.

Kiln Doors and Frames.

Manufacturers Equipment Co.
Wellington Machine Co.

Kiln Expert.

Haigh, L.

Kiln Insulation.

Armstrong Cork & Insulation Co.
Celite Products Co.

Loaders (Wagon and Truck).

Link-Belt Company.
Portable Machinery Co.
Sunbury Mfg. Co.

Locomotives.

Atlas Car & Mfg. Co.
Brookville Truck & Tractor Co.
Davenport Locomotive Works.
Fate-Root-Heath Co.
Goodman Mfg. Co.
Hadfield-Penfield Steel Co.
Industrial Equipment Co.
Nuttall Co., Geo. D.

Locomotive Cranes.

Ball Engine Co.
Bucyrus Company.
Erie Steam Shovel Co.
Link-Belt Company.

Machinery, Trans'n (Power).

Morse Chain Co.

Manganese.

Hy-Grade Manganese Co.
Lavino & Co.
Roessler & Hasslacher Chemical Co.

Mangles.

Philadelphia Drying Mach. Co.

Meters.

Brown Instrument Co.

Molds.

Bonnot Co.
Crossley Machine Co.
Hadfield-Penfield Steel Co.
International Clay Mch. Co.
Lancaster Iron Works, Inc.
Manufacturers Equipment Co.
Robinson, Frank H.
Wellington Machine Co.

Mold Sanders.

Hadfield-Penfield Steel Co.
International Clay Mch. Co.
Lancaster Iron Works, Inc.
Manufacturers Equipment Co.
Potts & Co., C. & G.
Wellington Machine Co.

Motor Cars.

Cole Motor Car Co.

Motors—Electric.

Burke Electric Co.
Westinghouse Electric & Mfg. Co.

Oil Burners.

Foerst and Sons, John.
Lancaster Iron Works, Inc.
Smokeless Oil Burner Co.

Oil Burning Systems.

Foerst and Sons, John.
Hopkin & Co., C. A.

Optical Pyrometers.

Brown Instrument Co.

Packings and Mechanical Rubber Goods.

New York Belting and Packing Co.
Quaker City Rubber Co.

Paints (Mineral).

Hy-Grade Manganese Co.

Pallets and Trays.

Lancaster Iron Works, Inc.
Ohio Galvanizing & Mfg. Co.
Robinson, Frank H.
Wellington Machine Co.

Pans, Dry Pans, Wet Pans, Clay or Chaser Mills Combination Tempering Pans.

Bonnot Co.
Chambers Bros. Co.
Crossley Machine Co.
Fate-Root-Heath Co.
Freese & Co., E. M.
Frost Manufacturing Co.
Hadfield-Penfield Steel Co.
International Clay Mch. Co.
Lancaster Iron Works, Inc.
Manufacturers Equipment Co.
Mueller Machine Co., Inc.
Robinson, Frank H.
Toronto Fdry. & Mach. Co.
Stevenson Company.

Perforated Sheet Metal.

Harrington & King Perforating Co.
Hendrick Mfg. Co.
Robinson, Frank H.
Wellington Machine Co.

Poidometer.

Schaffer Eng. & Equip. Co.

Portable Conveyors.

Portable Machinery Co.

Portable Track.

International Clay Mch. Co.
Manufacturers Equipment Co.
Robinson, Frank H.

Potentiometers.

Brown Instrument Co.

Potters' Machinery.

Bonnot Co.
Fate-Root-Heath Co.
International Clay Mch. Co.
Mueller Machine Co., Inc.
Wellington Machine Co.

Power Plant Equipment (Complete).

Bonnot Co.
Burke Electric Co.
Dodge Sales & Engineering Co.
Frost Manufacturing Co.
Hadfield-Penfield Steel Co.
International Clay Mch. Co.
Link-Belt Company.
Morse Chain Co.
Webster Mfg. Co.
Wellington Machine Co.
Westinghouse El. & Mfg. Co.

Power Transmission.

Caldwell Co., W. E.
Caldwell & Son, H. W.
Dodge Sales & Eng. Co.
Link-Belt Company.
Morse Chain Co.
Wellington Machine Co.

Pug Mills.

Bonnot Co.
Chambers Bros. Co.
Fate-Root-Heath Co.
Freese & Co., E. M.
Hadfield-Penfield Steel Co.
International Clay Mch. Co.
Lancaster Iron Works, Inc.
Manufacturers Equipment Co.
Mueller Machine Co., Inc.
Potts & Co., C. & G.
Robinson, Frank H.
Steele & Sons, J. C.
Stevenson Co.
Toronto Fdry. & Mach. Co.
Wellington Machine Co.

Pulleys, Cast Iron.

Caldwell Co., W. E.
Caldwell & Son Co., H. W.
Dodge Sales & Eng. Co.
International Clay Mch. Co.
Webster Mfg. Co.

Pulverizers.

Crossley Machine Co.
Manufacturers Equipment Co.
Mueller Machine Co., Inc.
Robinson, Frank H.
Stevenson Co.
Toronto Fdry. & Mach. Co.
Wellington Machine Co.
Williams Patent Crusher & Pulv. Co.

Pump, Dredging and Sand.

Bucyrus Company.

Pyrometers.

Bristol Co.
Brown Instrument Co.
Engelhard, Chas.
Fink Pyrometer Co.
Thwing Instrument Co.
Wilson Maclean Co.

Rack Cars.

Wellington Machine Co.

Railroad Ditchers.

Bucyrus Company.
Erie Steam Shovel Co.
Rails (Frogs and Switches).
International Clay Mch. Co.
Robinson, Frank H.

Rattler.

Bonnot Co.
Freese & Co., E. M.
Hadfield-Penfield Steel Co.
Manufacturers Equipment Co.
Robinson, Frank H.
Wellington Machine Co.

Recording Pressure Gages.

Bristol Company, The.
Brown Instrument Co.

Regulators.

Bristol Company, The.

Represses.

Bonnot Co.
Chambers Bros. Co.
Freese & Co., E. M.
Hadfield-Penfield Steel Co.
International Clay Mch. Co.
Lancaster Iron Works, Inc.
Robinson, Frank H.
Steele & Sons, J. C.

Revolving Screens.

Galion Iron Works.
Hendrick Manufacturing Co.
International Clay Mch. Co.
Link-Belt Company.
Robinson, Frank H.

Roofing Tile Machinery.

Bonnot Co.
Fate-Root-Heath Co.
Freese & Co., E. M.
Hadfield-Penfield Steel Co.
International Clay Mch. Co.

Rope Drives.

Dodge Sales & Eng. Co.
Link-Belt Company.

Rops (Wire and Manila).

Manufacturers Equipment Co.
Robinson, Frank H.
Williamsport Wire Rops Co.

Rotary Dryers.

Hadfield-Penfield Steel Co.
Lancaster Iron Works, Inc.

Sand-Lima Brick Machinery.

Hadfield-Penfield Steel Co.
Manufacturers Equipment Co.

Sand Crushers.

Wellington Machine Co.

Sand Dryers.

Wellington Machine Co.

Sand Mills.

Frost Manufacturing Co.

Scrapers, Plows and Clay Gatherers.

Eagle Iron Works.
Fernholz Brick Mach. Co.
Schofield-Burkett Cons. Co.
Toronto Fdry. & Mach. Co.
Wellington Machine Co.

Screens (Clay and Cement).

Bonnot Co.
Chambers Bros. Co.
Fate-Root-Heath Co.

Freese & Co., E. M.
Hadfield-Penfield Steel Co.
Harrington & King Perforating Co.
Hendrick Mfg. Co.
International Clay Mch. Co.
Lancaster Iron Works, Inc.
Link-Belt Company.
Manufacturers Equipment Co.
Mueller Machine Co., Inc.
Robinson, Frank H.
Schofield-Burkett Construction Co.
Stevenson Co.
Tyler Co., W. S.

Screens (Including Vibrating).

Robinson, Frank H.
Tyler Co., W. S.

Screen Plates.

Louisville Machine Mfg. Co.
Manufacturers Equipment Co.
Wellington Machine Co.

Screens (Rolled Slot).

Tyler Co., W. S.

Screens (Wire).

Link-Belt Company.
Manufacturers Equipment Co.
Tyler Co., W. S.

Screw Conveyors.

Caldwell & Son Co., H. W.
Link-Belt Company.
Wellington Machine Co.

Separators.

Tyler Co., W. S.

Sewer Pipe Machinery.

Bonnot Co.
Hadfield-Penfield Steel Co.
International Clay Mch. Co.
Manufacturers Equipment Co.
Stevenson Co.
Toronto Fdry. & Mach. Co.

Shafting.

Caldwell & Son Co., H. W.
Dodge Sales & Eng. Co.

Shakers (Testing Sieve).

Tyler Co., W. S.

Shale Planer.

Eagle Iron Works.

Sheaves.

Crossley Machine Co.
Link-Belt Company.

Shovels (Power).

Bay City Dredge Works.
Wellington Machine Co.
Bucyrus Company.
Erie Steam Shovel Co.
Link-Belt Company.
Marion Steam Shovel Co.
Thew Shovel Co.

Sieves (Testing).

Tyler Co., W. S.

Sifters.

Wellington Machine Co.

Silent Chain Drives.

Link-Belt Company.
Morse Chain Co.

Soft Mud Brick Machines.

Bonnot Co.
Hadfield-Penfield Steel Co.
International Clay Mch. Co.
Lancaster Iron Works, Inc.
Potts & Co., C. & G.
Robinson, Frank H.
Wellington Machine Co.

Sprockets.

Caldwell & Son Co., H. W.
Dodge Sales & Eng. Co.
Link-Belt Company.
Morse Chain Co.
Webster Mfg. Co.
Wellington Machine Co.

Stacks.

Frost Manufacturing Co.
Hendrick Manufacturing Co.
Lancaster Iron Works, Inc.

Steel Pallets.

Lancaster Iron Works, Inc.
Ohio Galvanizing & Mfg. Co.

Steel Plate Construction.

Hendrick Manufacturing Co.

Stiff Mud Brick Machines.

Bonnot Co.
Chambers Bros. Co.
Fate-Root-Heath Co.
Freese & Co., E. M.
Hadfield-Penfield Steel Co.
International Clay Mch. Co.
Lancaster Iron Works, Inc.
Manufacturers Equipment Co.
Robinson, Frank H.
Steele & Sons, J. C.

Stoker (Automatic).

Clay Service Corporation.

Supplies.

Bonnot Co.
Chambers Bros. Co.
Freese & Co., E. M.
Hadfield-Penfield Steel Co.
International Clay Mch. Co.
Lancaster Iron Works, Inc.
Manufacturers Equipment Co.
Robinson, Frank H.
Steele & Sons, J. C.
Stevenson Co.
Toronto Fdry. & Mach. Co.
Wellington Machine Co.

Tachometers.

Brown Instrument Co.

Tanks and Tank Towers.

Caldwell Co., Inc., W. E.
Crossley Machine Co.
Frost Manufacturing Co.
Hendrick Manufacturing Co.
Link-Belt Company.
Lancaster Iron Works, Inc.

Temperature and Pressure Regulators.

How About Those \$200?—

You might just as well get some of this money as the next fellow. Your chances of reaching a place of high rank in the 30th anniversary prize contest announced in our last issue is just as good as any other Brick and Clay Record reader.

Of course you don't care for the money. But we want to offer you something to make the slogan contest more interesting and simply offer the money as evidence or a symbol of your being a winner.

It will be more fun than you imagine. The zest and enjoyment that you get out of it will be worth your while and writing the slogan will be a good test of your ability to compose a slogan.

It costs you nothing but a two-cent stamp to enter a contribution in competition for a share of this \$200 and **the only condition is that you send in a bona fide, honest-to-goodness, easy-to-read or easy-to-remember phrase that is true to facts and that puts into the fewest possible words, your own personal experience or observation regarding it.**

Brick and Clay Record does not restrict you to one slogan but you may send in as many as you wish and as many times as the inspiration strikes you.

The prize contest for the best slogan for Brick and Clay Record has been planned as part of our program in celebrating our 30th anniversary. Brick and Clay Record will be 30 years old in 1923. The contest was decided upon as being a popular way to celebrate the occasion of 30 years of faith and esteem on the part of the readers of our publication and of the splendid support and cooperation of manufacturers thruout the world.

Eight prizes will be awarded as follows: For the best slogan a prize of \$100; for the second, \$50; for the third, \$25 and five additional prizes of \$5 each.

Complete particulars on this prize slogan contest were given on pages 718-19 of the November 14 issue of Brick and Clay Record. If you haven't yet sent your slogans in, don't delay. Send in your best thought at once,—and if you wish you may follow with others later. One of these may prove to be the happy phrase that will win the prize of \$100. Who can tell?

Get in the Game—Send in Your Idea

The Leading Clay Journal of the World

BRICK AND CLAY RECORD

(The Slogan Selected Will Appear Here)

(The opinion of our readers, expressing the purpose and spirit of this publication)

Ability to Adapt Is a Treasure of Your Success

WITH THIS ISSUE is completed the special series of articles on plant betterment. While the department will be discontinued it does not mean the writing of "finis" to the plant betterment type of information. Brick and Clay Record will (under the head of "Superintendent" or elsewhere) continue to publish, as it always has in the past, articles that will equip a plant manager with knowledge enabling him to adopt methods and machinery that in some way will improve his plant.

During the period of the special Plant Betterment Campaign some 75 contributions most of them illustrated, were published. These were items containing data gathered right in the field. Many sections of this country and Canada were searched to get subject matter for this campaign. They were practical, tried-out ideas which had bettered conditions on the plants where they had been installed and adopted. The names of each plant from which the ideas had been combed were included in each article.

Many of the items described methods, systems or equipment which other plants might install "as is." Most of the matter, however, might perhaps require some modification before being adoptable. On the other hand, to some plants not any of the material published may be useful but suggested ideas which with some study could be worked out to the advantage of the plant operator.

To the man or plant that got nothing out of the plant betterment articles we would suggest that the items be read again to see if there is not some idea in them that can be applied. A man of vision, resourcefulness and originality makes good and tried ideas the basis of his own plant betterments and evolves from them new and different schemes. The value of ideas is not so much what they are worth "as is" but what thoughts they germinate. They are seeds of thought. Those who fail to see the seeds can hardly be expected to cultivate them so that they blossom into useful fruit.

Unfortunately, in the past there has been too much tendency in the clay industry to look for ideas to adopt;— it has passed up good suggestions that might have been adapted to meet the specific needs of the individual manufacturer. Much depends upon the plant manager's aptitude, propensity and proficiency as to what information he can use and adopt. In other words, he will get out of articles that have been published exactly what he will put into them in the nature of study and development.

In passing, it is not amiss to urge at this point that the manufacturer not only study the methods of others in his own industry but to look into other industries as well, for suggestions.

Refractories Must Keep on Improving

SCIENCE and engineering are constantly progressing and as a consequence are continually making larger demands on the various forms of energy. One demand is the use of exceedingly high temperatures as compared to those in use a few years ago, —temperatures in fact that were thought impracticable at that time.

Power plants are being constructed which convert greater quantities of heat energy into electrical energy than heretofore, and therefore the furnaces are subjected to more severe treatment; metal furnaces of entirely different types and involving altogether different processes, requiring higher temperatures have come into use; transmission of high electrical voltage and other developments in the electrical industry are requiring porcelain which must be burned at considerably higher temperatures in order to be of the quality desired.

How does this effect the clay products industry? It is demanding a higher grade of refractories and is straining the ability of the refractories manufacturer to meet the requirements.

It has been reported that as a general average the melting point of fire brick has receded by several cones from the melting point common a decade ago. This is an adverse statement that may be hard to prove. There is no doubt but that the high-grade refractory clays of this country are

being consumed at a rapid rate. There should be, therefore, an incentive to locate more good fire clay deposits with the special desire to find clays with even greater refractoriness and quality than have heretofore been used.

The refractories industry is facing a market which is becoming more specialized and more exacting in its requirements each year. Improvement of average quality is essential in every department of the refractories industry from the location of suitable clays, care in preparing, molding, drying and burning to the proper recommendations for use in construction.

Support Your Association

IF THERE IS ANYTHING more disheartening to the officials of trade associations than the lack of interest some of the members display when they are asked to do something to help along a certain cause, we would like to know it.

In every trade association there are some who do the bulk of the work; they spend their time and money for the benefit of others who very seldom even attend the associations' meetings. Not only do they absent themselves but they are the first ones to criticize the associations' officials when something does not suit them. Under these conditions no association can function best or make steady progress.

Trade associations can act as clearing houses for information that every plant must have if it is to prosper. They can, by interchange of ideas, stimulate their members to better business methods. They can do real constructive work which will eventually result in a better class of operators.

If the information your association is asking of you is not going to help you directly it may enlighten your competitor. Thus, if by increasing his knowledge of business so that he understands all of the proper fundamentals, his ethics and business principles more nearly conform to yours, you have done yourself a service indirectly at least.

You can get benefit out of a trade association exactly commensurate with what efforts you put into it. It's up to you!



This country is divided into two classes of people—dreamers and mourners. The dreamers are those who are letting their imagination build air castles and after the air castle is completed it arouses their enthusiasm and ambition into action with the result that their dream becomes an actuality. But (continue at the right).



the other class—the mourners, the eternal growlers, the hard luck story-tellers, the irresponsibles, the men of no vision—we can tell all about that class in one sentence. They have lived and died but the world is no better because of their having been in it. And the sad part of it is that the mourners' class will always enjoy full membership.—The Anchor.

\$1,200 Drill Paid for in Six Months

Formerly Four Men Worked Hard.
Now One Man Does It Working Easily

The Windsor Brick Co., of Akron, Ohio, has greatly improved drilling operations in its pit. Formerly this company required two men, working continuously to drill sufficient holes for shooting down their clay. The bank is 50 feet deep and aside from the large expense for this work, it was often difficult to find men for this job on account of the hard work involved. Another trouble with the old system was that the diameter of the hole was limited. This reduced the amount of explosive that could be placed low enough

plant is idle. By this arrangement no additional men are required, and the cost has been greatly reduced. In addition the power drill makes a hole three and a half inches in diameter. The hole is sprung and 300 pounds of gelatine dynamite and 20 kegs of powder placed in it for the charge. The resultant blast throws the material as shown in the illustration, very convenient for the shovel. One additional advantage is that it is unnecessary to clean up the floor of the pit, as the material is not thrown as much as formerly. This labor is entirely eliminated. On an average five holes in two months are used and the capacity of the plant is 60,000 brick per day. The power drill consumes about two and a half gallons of gasoline to drill one hole 50 feet deep.



Pit of Windsor Brick Co., Showing Power Drill on Top and Results of Last Shot Near Shovel.

in the hole to throw the material out in the manner desired. The hole was always sprung but even then it was not possible to place the charge as low as desired.

About three years ago at the peak of high prices a gasoline driven drill was purchased. It cost \$1,200, but the savings amounted to more than that in six months. Now the shovel operator does the drilling Saturday afternoons, when the

New Use Found for Hollow Tile

Kiln Walls Built of Nine Inches of Fire Brick
and Twelve Inches of Tile Thoroughly Satisfactory

An additional use for hollow tile has been developed by the National Fireproofing Co. At the plant located at Ottawa, Ill., this company uses hollow tile in the kiln walls. The inside nine inches is made of standard fire brick. Outside of this are two rings of hollow tile, each ring being six inches thick. This makes nine inches of fire brick and 12 inches of hollow tile or 21 inches in all. These two rings are laid up with staggered joints to overcome any chance of air leakage thru the walls. The tile used in this work are 12 inches long, six inches wide, and make a six-inch course. Each tile has six cells, which are vertical as laid in the walls. The webs of the tile are one inch thick.

The superintendent of the plant, George P. Fisher, states that the first of these kilns has been in use for four years, does not show any crack or blemish and does not radiate any more heat than a thick brick wall. The cost of construction is considerably less and the kilns take up a little less room.

\$2,800 Upkeep for Horses No Longer Necessary

Several Hudson River Brick Manufacturers Have Supplanted Horses with Motor Trucks Mounted with Dump Bodies

The days of the horse and cart are limited in the Hudson River district, where it is a common sight to see from 20 to 40 of them on a single brick yard. It is becoming increasingly difficult to secure men who have the interest in horses to take proper care of them. Most of the present day labor

ELIMINATE WASTE

abuses horses, and this is more and more realized among the river plants.

The Roseton (N. Y.) Brick Corporation recently replaced several of their horses and carts with trucks made by mounting an Easton roll-over body on a Ford chassis.

The truck supplies coal to the various machines on the yard, this coal being mixed with the clay during the forming. As the result of this installation of the trucks, the distribution of coal has been speeded up considerably, and has reduced the requirement of horses, carts and men.

In Haverstraw, New York, there are a number of manufacturers who have adopted the same type of truck, using them for hauling clay as well as coal. Under many conditions it is not practicable to use locomotive cars and portable tracks efficiently. Sometimes the grades are too severe to enable good loads to be hauled. Moreover, the taking up and relaying of tracks is often required where shifts are made from pit to pit. This amounts to a considerable item.

In order to secure full circulation of equipment it would be necessary in many cases to employ two lines of track. The arrangement is not very flexible and there is a considerable investment in this special equipment which cannot be used for other or general purposes.

This is the situation among many Hudson River plants and of course plants in other sections of the country as well.

One plant in the Hudson River section experimented with heavy, specially built dump carts and powerful tractors. It was found impracticable, however, to get the tractors thru the heavy, wet and sticky clay and over the very bad roads which exist among many of the localities where Hudson River plants are located. The plan finally had to be abandoned.

This operator then secured several one-ton Ford trucks and equipped them with Easton roll-over bodies. These make the handling of the clay between the clay banks and mixing pits quite a simple problem. The bodies, which are of one and one-quarter yard capacity, are loaded by power shovels. In stripping the clay, they are used in a similar manner, altho

shovels to load the carts, 30 men were required in the clay pit, but with the motor trucks only one man is required on the shovel and one driver for each truck. The roll-over dump bodies are tripped from the seat of the truck and then automatically returned to position without a hand touching them.

As to comparison in speed, it has in the past required four horses with carts and drivers three hours to load one of



Truck Being Loaded by Steam Shovel in Stripping Operation

the mixing pits or chambers at the machine. One Ford truck and driver perform the same work in one and one-half hours.

It must also be remembered that during the inactive season in New York clay plants when horses are unable to do any other work they have to be maintained at a cost of about \$1 a day. At this particular job 16 horses were used and for the six inactive months of the year it has cost about \$2,800 alone to keep the horses.

The Ford trucks can be used during the winter months for various miscellaneous tasks.

Breakage Due to Walking on Lower Bench Eliminated

Pad Which Is Pliable Like a Mattress Provides Insurance Against Large Item of Loss

In many plants using down-draft kilns a considerable part of the kiln loss occurs on the top course of the lower part of the bench. Ordinarily the lower part or bottom of the bench is set about 15 or 16 brick high, and the setters stand on this while finishing the bench. The ware for the upper part of the bench is either tossed to them by helpers or brought to them by a setting conveyor. In either case the setters must stand and walk upon the top row of ware of the lower part or bottom of the bench. The rough soles always damage the ware. Most plants use some kind of a board with cleats on the bottom. The board or the cleats are supposed to be covered with some kind of cloth or packing to prevent injuring the corners of the ware as the setters walk back and forth. This system is always good when the packing or protection is kept in proper condition and repair, but it is very easy for it to wear out slightly and be neglected so much that it affords practically no protection.

All loss of this nature can be eliminated by the use of a pad like that employed by the Adel (Ia.) Clay Products Co.



Dumping Clay at Mixing Pit of Brick Machine

of course the earth is dumped for fill-in material. The ease with which they are turned and backed makes them particularly valuable in the short turns necessary at the mixing pits.

The trucks make much faster time and carry much more material than the old horse carts. In the old days with hand

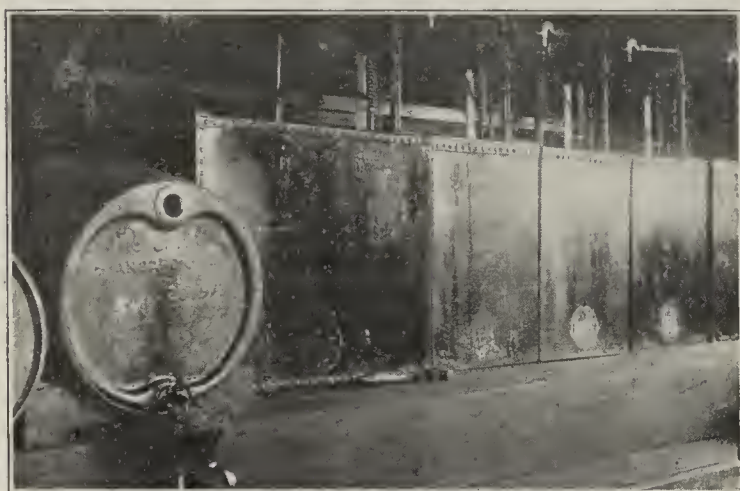
IMPROVE YOUR PLANT

This is a large pad of wool about an inch or an inch and a half thick, of about the same width as the bench and about 12 feet long. It is covered on both the top and bottom with heavy canvas. The entire piece looks like a thin mattress. The principal advantages gained by the use of this convenience are that it is pliable and if part of the bench sticks up slightly above the rest of the ware it will not be damaged to such an extent that it will be unsaleable when the kiln is emptied, and the further advantage that it cannot be used when it is worn out and in such a condition that it will injure the ware.

Storage Tanks Avoid Waste in Lubricants

This Installation Will Also Reduce Chances of Fire Losses from This Cause

The Ottawa, Ill., plant of the National Fireproofing Co. has reduced or rather prevented entirely any waste of lubricating oil by the installation of the Gilbert & Barker oil storage tanks shown in the illustration. The barrels of oil are hoisted



Part of the Oil Storage Tanks at Ottawa (Ill.) Plant of National Fireproofing Co.

by chain block up a runway made of metal. Part of this can be seen at the top of the tanks. The barrels are pushed along this metal runway until over the correct tank. The contents are then emptied into the storage tank.

Handles Coal for One-Third of Former Cost

Novel Arrangement of Coal Unloader and Storage Bin Adjacent to Dryer Transfer Track

The Imperial plant of the Metropolitan Paving Brick Co. at Canton, Ohio, has reduced the cost of handling its coal from the cars to the kilns to one-third the former cost. To do this a Galion coal unloader was built which unloads all of the coal used in a half day and requires only one man to do it. The storage bin holds 250 tons and is located so that the hoppers will empty into small cars which are located on a trailer to be hauled back and forth by a transfer car. One illustration shows this trailer at the hopper.

There are two of the small cars on the trailer and the trailer after being loaded with coal is pulled or pushed by a regular transfer car to the kiln in need of fuel.

The method of transferring the coal to the space between

the kilns is shown in the other illustration. A narrow gage track like the one shown runs between each two kilns. A short portable track is set into the space between the two blocks in the foreground of the illustration. This short track



Track at Kiln for Transferring Small Coal Cars to Any Firebox Requiring Coal.

fits directly next to the small cars on the trailer. The cars are run onto this track to the firebox requiring coal, the body of the car is turned on the turntable, which is part of the car and the contents dumped. After both cars are dumped the trailer is returned to the hopper for another load. The track on which the trailer moves is the regular transfer track for taking dried brick from the dryer to the kilns.

Two men with this equipment deliver all of the coal used



Two Small Dump Cars at Coal Hoppers. These Are Transferred to Kiln Tracks by Means of Transfer Trailer Car.

every day. The plant manufactures 95,000 paving blocks per day, weighing ten pounds each. Previously they required six men all day to unload coal and wheel it to the kilns. To do it with that number of men it was often necessary to place the coal cars on the loading track. Frequently this interfered with the loading of brick. If the loading track had not been used more men would have been required.

Use Expansion Joints in Pipe Line

Expedite Location of Burners—
Make Pipe Lines Easily Adjustable

A very satisfactory method of adjusting the distance from center to center of the several oil burners is employed by

REDUCE YOUR COST

the Wm. Clippert Brick Co. of Detroit. This plant burns its brick in up-draft kilns and has found that it is difficult and at times impossible to set the benches accurately enough to avoid having to insert different lengths of pipe in the spaces between the burners. This adjustment is made by using standard pipe expansion joints at several places in the pipe that forms the feed lines. These expansion joints are easily kept tight and can readily be pulled out or pushed together to make adjustment for any variation in the distance.

Conveyor Enables Setters to Handle Maximum Amount of Ware

Elimination of Tossing Makes Easy Work for Helpers and Reduces Breakage of Ware

A constant stream of tile is assured to the setters by the use of a setting conveyor, like the one illustrated. This is used at the Adel (Ia.) Clay Products Co. Short tracks are placed on



Man Can Handle More Ware and Damage Less of It with a Setting Conveyor Like This. It Is Easier Work Also.

either side of the kiln door so that a loaded car can be ready for the helpers at all times. In place of the excessively hard work of tossing ware continuously from morning to night, the helpers do nothing but handle or transfer the ware from the dryer car to the conveyor, which is fitted with cleats to prevent any tile falling off the conveyor as it moves up towards the setters.

Two helpers and two setters take care of one car of ware containing 96 5x8x12 tile in two and a half minutes.

Installs Unique Metal Offbearing Belt

User Claims That Friction Is Eliminated and the Replacement Cost Is Low

The plant of the National Fireproofing Co., located at Ottawa, Ill., and known as the Pioneer Plant, has a unique metal offbearing belt for conveying the hollow building tile and fireproofing, after the ware has passed thru the cutter. This belt consists of a series of plates 12 inches long, three inches wide and one-eighth inch thick. These plates are fastened by means of countersunk bolts, which can be seen in the illustration, to a link chain made of manganese steel. This unique belt is driven by means of the chain; it revolves around sprocket wheels, one at each end.

The first belt of this type was in use seven months but there were two link chains instead of one, and they were not

constructed of manganese links. These ordinary links wore unevenly and at times one chain would be tight and the other loose, causing some trouble. The present belt has eliminated inconvenience from this source and is perfectly satisfactory.



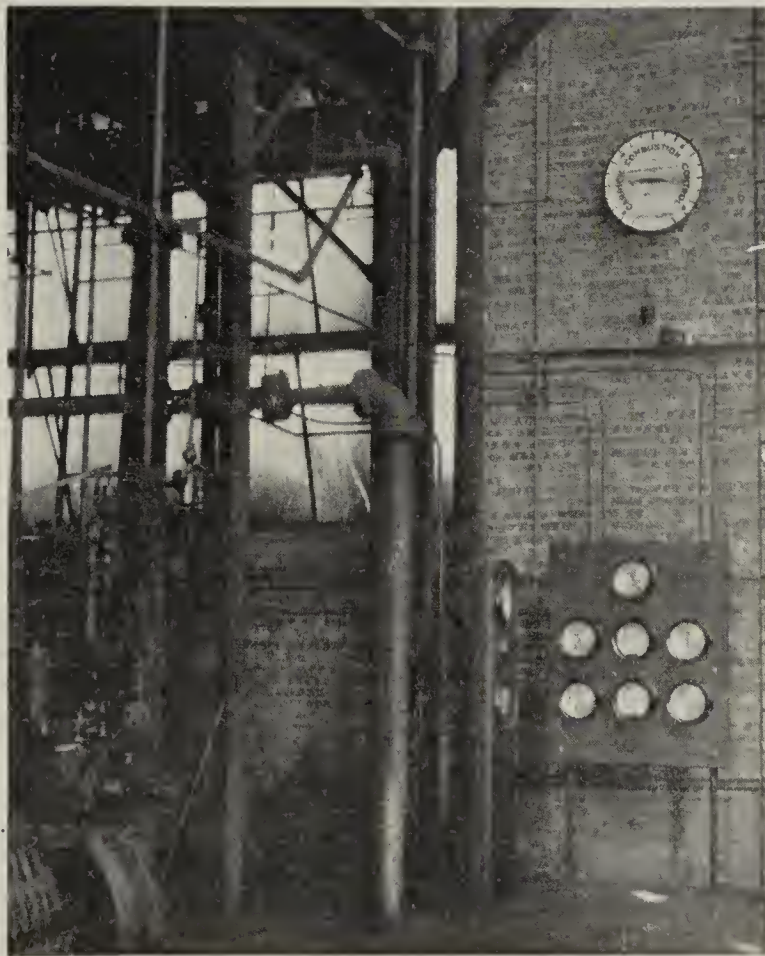
Off-Bearing Table Showing the Metal Plates Which, Fastened to Chain, Form Belt.

This metal belt is 24 feet long and costs about \$200. It is the result of the efforts of George P. Fisher, the superintendent of the plant, to reduce costs. A canvas offbearing belt was used formerly but lasted only about six weeks.

Savings Paid for Control System in One Year

Equipment Sold on Basis of Monthly Savings Shown on Books of Purchasing Company

One of the many advantages of a good, complete, accurate,

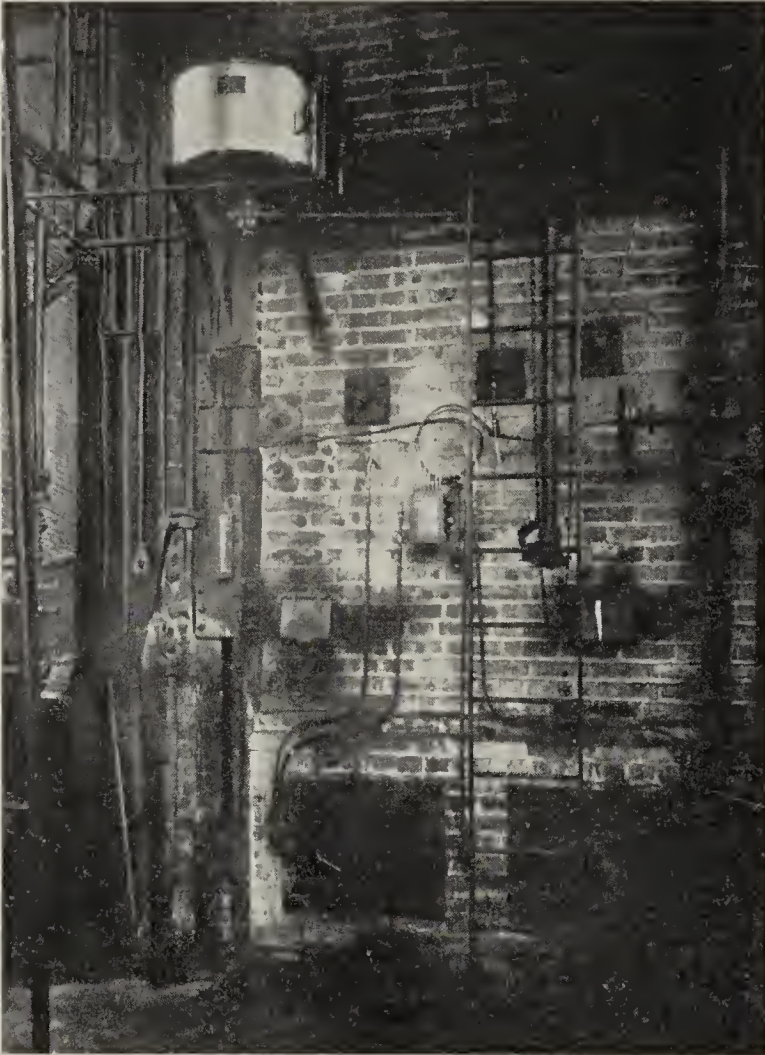


Combustion Control System Installed.

thoro and practical cost accounting system, such as maintained by the Barron Brick Co. of Chicago, came to light recently.

SET ASIDE DIVIDENDS

This company has a hollow building tile plant at Roanoke, Ill., and a short time ago purchased a Carrick Combustion Control System for their boiler plant, which consists of three ordinary tubular boilers of 450 total horsepower. The control system was planned to regulate both the forced draft which they



Gage Board and Damper Indicator.

installed and the damper so as to produce the utmost economy. This installation is automatic.

The advantage of having a good cost accounting system came from the fact that the company purchased this boiler control system on the basis of monthly payments, each of which was equal to the saving in fuel as shown by the cost accounting system. The complete equipment was fully paid for in 13 months on this basis. The installation in one sense did not cost a cent, and in another sense, considering the entire cost, the investment pays a 100 per cent. dividend every year.

This control system is applicable to and can show excellent savings for any boiler capacity above 250 h.p.

Pyrometer Room for Firemen Increases Efficiency

Lockers, Bench for Marking Kiln Records and Place in Which to Keep Trials and Past Records Provided

The superintendent of the Mogadore, Ohio, plant of Robinson Clay Products Co. has built a special room at a central point for the kiln firemen. In this room are all of the pyrometers and a bench provided for the burning charts.

Each chart has marked on it the standard rate at which the fires should be increased, that is, the temperature that should be attained at certain hours. Alongside of these standard figures each burner places the figure attained each hour. Previous to this the records were placed at different points around the yard. This central point brings all of the men together and if one man is having trouble with his kiln the others may be able to assist him or at least give him advice. Lockers for the burners are also provided and in a short time there will be a place in which to keep all trials and records of each kiln separate. The object of this latter provision is to determine a standard speed at which each kiln can be burned when it contains pipe of a certain size. It is well known that identical kilns vary in burning time. By this means also the carbon core in the trials can be inspected to determine if there is any variation in the speed with which it disappears.

Fan and Flues Make 30 Per Cent. Production Increase Possible

Reduction of Watersmoking Period Increases Kiln Output and Lowers Fuel Consumption

The Windsor Brick Co. of Akron has installed a fan of its own manufacture that speeds up the kilns to the extent that ten kilns turn out as much as they formerly burned in 13. They do this by having a complete set of underground flues with many dampers. The fan is seven feet in diameter, four feet wide and runs at 192 r.p.m. When a kiln is cooling the heat is pulled out of it by means of this fan and forced into a kiln which has been set in order to speed up the watersmoking. When this kiln has been raised to a temperature of 200 degrees the fires are started and the dampers changed so that the draft or the products of combustion are pulled thru the fan and forced thru another underground flue or duct to an outlet at a distant point. When the fan is operated for this purpose the brick



The Fan Inside of Housing Is Pulling Products of Combustion from a Kiln and Exhausting Them Thru Underground Flue. Wicket Is Bricked Up When Pulling Waste Heat from a Cooling Kiln.

wicket or doorway as shown in the illustration is opened in order to prevent overheating the fan. The bearings on this fan are water cooled. The first operation, that of pulling the

INCREASED PROFITS

heat from a cooling kiln, generally lasts for about two days, and the second operation, that of pulling the products of combustion thru the fan, generally lasts one day.

The company developed this system when it was burning with producer gas. The producer house burned down in July, 1922, and the kilns were equipped for coal firing. It was found that the same method of speeding up the kilns can be used on coal as on producer gas.

Poidometer Pays for Itself Every Six Months

Not Only Eliminates One Man Entirely but Produces Better Quality and More Ware

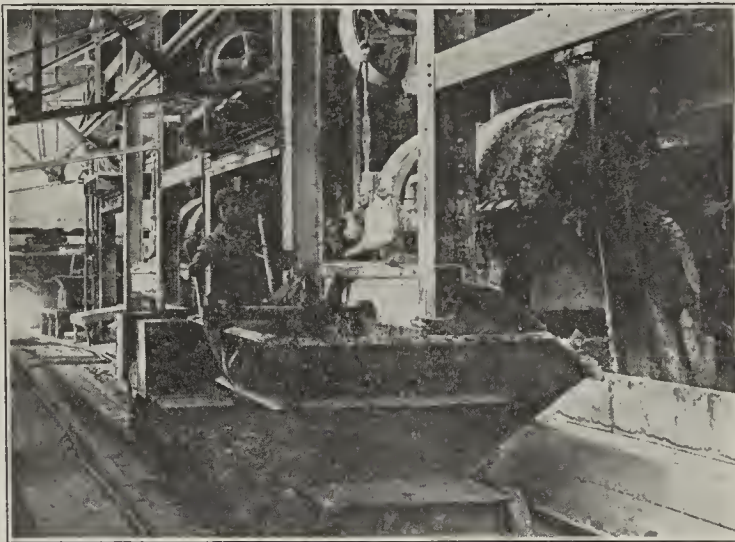
The installation of a poidometer at the plant of the Adel (Ia.) Clay Products Co. has eliminated the need of a pug mill man entirely. This is not the only saving, however, as the constant and uniform feed of both shale and water increases both the quantity and quality of production. H. R. Straight states that this equipment pays for itself every six months. There is no man at the pug mill, yet if the constant and uniform feed of either clay or water is reduced or stopped for any reason, the entire supply of both materials is shut off immediately and at the same time a bell rings to indicate to the men that it has been stopped.

Electric Locomotive Moves All Raw Material

Silica Brick Plant Empties Pan Contents into Cars and Then Pushes Cars Along Track

The General Refractories Co. plant at Joliet, Ill., has a very economical method of handling raw material. As shown

are placed at that height so that the batch of silica mud can be dumped into the circular bins for the molders. At the bottom of these bins the molders benches are placed so that the mud is as convenient as possible. The view of the car



Storage Battery Truck Pushing Car Loaded with Mud to Opening in One of the Circular Molders' Bins. Pan Can Be Seen at Right.

is taken from the top of these bins, in fact the bins are directly beneath the track, and the opening to each bin is covered by boards. The mud is shoveled into this car by an automatic emptying device, and pushed along the track by an automatic transportation electric storage battery truck. The cars hold exactly one pan load.

Accident Prevention Pays Big Returns on Installation Cost

Simple Guard Around Moving Belt Eliminates Chance of Injuring Men

The reduction in accident payments will show a higher rate of interest on the cost of installation than was possible when labor rates were lower. Accident prevention, therefore, is more advisable than ever.

The Walsh Fire Clay Products Co. has followed this line



This Guard Helps to Decrease Accidents in the Plant.



Molders' Benches on Floor at Bottom of Circular Bin. Pan Can Be Seen About 18 Feet Above Floor on Concrete Foundation.

in the illustration the wet pans are placed on concrete foundations about 18 feet above the ground or factory level. They

of thought in their plant at Vandalia, Mo. One method of protecting men from being caught by a moving belt is shown in the illustration. A guard has been placed around the belt which drives their elevator.



Paving Brick Men Whom You Will Probably Meet at Cleveland, December 12 and 13.

Stage Set for Paving Brick Annual

December 12 and 13 at Cleveland Will Be Big Days for Paving Brick Men—N. P. B. M. A. Closing Year Replete with Accomplishments

CONVENTION PLANS for the National Paving Brick Manufacturers' Association are being completed at the association headquarters in Cleveland, O.

The convention will be held in Hotel Cleveland, at Cleveland, December 12 and 13, and close to 75 members are expected to attend.

Though incomplete, the program for the meetings will include the activities of the closing year, these in turn to be used as a background for future development of the industry thru the association.

Outstanding features of the year's accomplishments include educational work, in publicity that has reached the technical expert as well as the general public; research in production; simplification of varieties of paving brick and representation in Washington.

What Has Been Accomplished

Foremost of these may be considered the simplification of varieties, realization of which took months of expert work, which now appears to be labor well spent. The plan is working well, and has proved a big success to producer and consumer alike, manufacturers in the association agree. In fact so interested has the government become in this and similar work that the Department of Commerce is issuing bulletins on simplified practices, and in the list of these paving brick has the top position.

Publication of Dependable Highways, a house organ type of information, that differs entirely from any similar effort, heads the work of educational information distributed by the association during the year. This publication is issued monthly to 5,500 engineers and public officials, along with practical information on how engineers may use paving brick and the merits of the material as well. Linked with this work has been a consistent effort to get before the using public general information on the value of paving brick. Technical articles have appeared in many publications, and schools and engineering and similar organizations have been provided with practical exhibits at intervals thruout the year.

In regular advertising, which has supplemented the material appearing in newspapers and periodicals in all parts

of the country, a constructive policy has been established, which is bearing fruit. Good progress in this connection has been made in trade journals, in keeping with conditions during the year. In daily newspapers 45 publications are being used in Cleveland and vicinity, in Illinois and adjacent territory and in the State of Florida.

Thru its Washington representation the association has kept in touch with the government, ready to lend its practical aid to public movements for the betterment of roads, as well as to aid the members of the organization.

These and many other subjects will be taken up at the convention, with a view toward their further perfection, if need be, and for greater progress during the new year. The first day will be devoted largely to discussions covering the national association as it appears to the outsider. The second day will be given over to the regular business and the new topics that will come up for action next year. A dinner will be held on the night of the first day.

N. P. B. M. A. Officers

Officers who have guided the national association thru 1922 are:

Chairman of the board, S. M. Duty; president, O. W. Renkert; vice-president, W. M. Lasley; vice-president, W. P. Blair; treasurer, C. C. Barr; asst. treasurer, B. L. Beller; secretary (executive), M. B. Greenough; asst. secretary, Stanley A. Knisely.

With the turn of the year the association will lose the services of M. B. Greenough, who retires as executive secretary, and his place will be filled by Edward E. Duff, whose coming to the organization was told of in Brick and Clay Record several weeks ago.

The association executives are looking forward to this meeting as one of the most successful in the organization's history, and no effort will be spared to make the program worth-while.



COURT SETTLES DISPUTES OF LABOR

That industrial disputes between capital and labor can be adjudicated by the court, and how this is being accom-

published in the new Industrial Relations Court of Kansas, was told to members of the Cleveland Builders' Exchange at the 30th annual meeting of that body by Judge William L. Huggins, presiding justice of the court. Of the many significant features of this comparatively new tribunal which were brought out by Judge Huggins, the fact that 42 cases had been passed upon already, and only one of these has been appealed, was considered by him as the most important to prove that the new method of settling controversies between capital and labor can succeed. Only the interference by politicians, who seek popular favor at the expense of the public good, can cause the new system to fail, the judge asserted.



EXPECT 500 AT COMMON BRICK MEETING

Plans for the convention of the Common Brick Manufacturers' Association of America are already under way at Cleveland (Ohio) headquarters, tho the event will not be held until February 5, 6 and 7. The convention will be followed immediately by that of the National Brick Manufacturers' Association, on February 8, 9 and 10. Both will be held at Hotel Winton, Cleveland, O.

In the opinion of Charles A. Bowen, assistant to President Charles H. Bryan, of the common brick manufacturers' organization, this will be the largest gathering in the history

of the institution, at least 500 manufacturers being represented or actually present. This belief is based upon the information gathered by Mr. Bowen in an intensive canvass of the country, from which he but recently returned to Cleveland. A goodly percentage of this representation will be from the West, and many special cars are expected to bring the members from the different sections of that territory into Cleveland.

"We believe that this sentiment is the best indication of the conception of organization on the part of the brick manufacturers of the country," says Mr. Bowen. "They realize that by working with the association they themselves are getting ahead in their own business, and of course getting better results. Thru the absorption of the association's ideas they are now going out and creating business, instead of, as formerly, waiting for business to come to them."



A. S. T. M. TO MEET IN JUNE, 1923

Provided satisfactory arrangements can be made the executive committee of the American Society for Testing Materials has decided that the 1923 meeting will be held at Atlantic City, N. J., in the latter half of June. The exact date has not definitely been decided as yet.

A meeting is scheduled for Committee C-8 on Refractories to be held December 15 at Pittsburgh.



Saskatchewan Clay Deposits Offer Big Opportunities

CERAMIC EXPERTS predict that the Province of Saskatchewan will become the leading clay producing area of the dominion because it has a greater variety of clays than any other province of Canada, and that with development Saskatchewan should, in the manufacture of pottery and clay products, attain first importance. These clays range all the way from the lower grades used in the manufacture of brick and tile to a kaolin which, it is said, burns as white as, if not whiter than, the best British product. As soon as financial conditions warrant it the provincial authorities are bent on taking steps for the development of these deposits which will give Saskatchewan its rightful place in ceramic manufacture.

To promote a knowledge of the Saskatchewan deposits and encourage their development a course of ceramics was included some time ago in the curriculum of Saskatchewan University, and a ceramic engineer was secured who had a wide experience not only in tuition but also in field work among clays and in designing and constructing plants for the manufacture of brick, tile and other clay products. This accomplished a definite step forward in rendering available for commercial enterprise some of the valuable and extensive clay deposits of the province.

All Types of Clays in Saskatchewan

The classes of clay found in Saskatchewan are fire clay, brick and tile clays, and earthenware clay. The first occurs at Eastend, Readlyn, Willow and Claybank; the second at Bruno, Estevan, Arcola, Weyburn, Pilot, Butte, Claybank, Shand, Broadview and Eastend; the third at Readlyn, Willow and Eastend.

Extensive work undertaken has definitely proven that Saskatchewan clays justify greater development and the establishment of pottery industries in the province. Exhaustive tests have been made with Eastend clay in ceramic laboratories at New York, in making chinaware,

porcelain, terra cotta, and so forth, and all were highly satisfactory. No plant for these wares has yet been established in Saskatchewan and all chinaware and pottery of every description has to be imported. A total of 170 earloads of clay were shipped from Eastend to Medicine Hat, Alta., in the past year to be manufactured there into brick, tile and pottery.

Opportunities for Development Are Many

It is self-evident that opportunities exist in the province of Saskatchewan for entering upon the exploitation and commercial development of these clay deposits which are, for the main part, accessible to good transportation facilities and other industrial requirements. Canada's imports of clay and clay products in the fiscal year 1921 amounted in value to \$10,781,592, and in 1922 to \$6,778,365, while the dominion's exports of these products were of the insignificant amount of \$323,989 in the former year and \$257,624 in the latter. In 1920 Western Canada alone used more than \$28,000,000 worth of clay products in addition to its share of \$4,000,000 of crockery imported into Canada. In the province of Saskatchewan brick and tile buildings in excess of \$8,000,000 in value are erected each year. The material for these buildings has to be imported, and is valued at approximately \$300,000, the extent to which this province, with such valuable deposits, contributes to manufacture.

Saskatchewan, which contains many favorable locations for the establishment of clay manufacturing plants, has as yet no clay industries, but the province is keenly alive to the situation and the opportunities that are waiting. In its accurate survey of its many and various clay deposits, its exhaustive tests to determine the suitable qualities of all material, and thru its university course preparing a future supply of trained ceramic experts, it is paving the way for the development of the clay industry on a scale the dominion has not hitherto known, and one which its valuable resources warrant and justify.



Have you sent in your slogan as yet? Read page 780.

Editor's Note—This information on Saskatchewan clays was gathered by the Canadian Pacific Railway and the article written by them. The province undoubtedly has great possibilities and merits the serious attention of anyone desiring to enter the clay industry.

Business Briefs and Trend

WHOLESALE PRICE AVERAGE GAINS

Wholesale prices of commodities averaged higher in October than in the month before, according to information gathered in representative markets by the United States Department of Labor thru the Bureau of Labor Statistics. Measured by the bureau's weighted index number, which includes 404 commodities or price series, the increase in the general price level was approximately three-fourths of one per cent.

Farm products again showed large increases. In this group prices in October averaged $3\frac{3}{4}$ per cent. higher than in September. In the group of miscellaneous commodities the increase was $3\frac{1}{2}$ per cent. Food articles advanced $1\frac{1}{2}$ per cent., and cloths and clothing advanced $2\frac{3}{4}$ per cent.

Building materials and housefurnishing goods showed an increase approximating $1\frac{3}{4}$ per cent., while metals and metal products increased less than one per cent.

Continued decreases took place in the group of fuel and lighting materials, bituminous coal and coke declining rapidly in the face of increased production. No change in the general price level was reported for the group of chemicals and drugs.

* * *

TREMENDOUS GROWTH OF MOTOR TRUCK USE

"Since 1913 and up thru the present year the motor truck industry shows a growth of 1,540 per cent. as compared with a total of 715 per cent. for the automobile industry," M. L. Pulcher, vice-president of the Federal Motor Truck Co., says.

"The truck industry is just beginning to hit its stride, and in the next decade surprising things may be expected. Figures just made available show that in 1913 there were 64,000 motor trucks registered in this country; in 1914 there were 85,000; in 1915, 140,000; in 1916, 198,000; in 1917, 289,000; in 1918, 433,000; in 1919, 749,000; in 1920, 975,000; and in 1921, 1,050,000.

"These figures show that it was not until late in 1917 and during the start of 1918 that the motor truck became a vital factor in the business life of the country."

* * *

RAILROADS CANNOT HANDLE ENOUGH FREIGHT

"In the five years ending with 1907 the average annual increase in tractive power of all the locomotives in service was 128 million pounds," said S. O. Dunn, editor of Railway Age, in a talk at the Associated Business Paper convention. "In the seven years ending with 1914 the average annual increase was less than 75 million pounds. In the seven years ending with 1921 it was only 63 million pounds. In the year 1921 it was less than 39 million pounds.

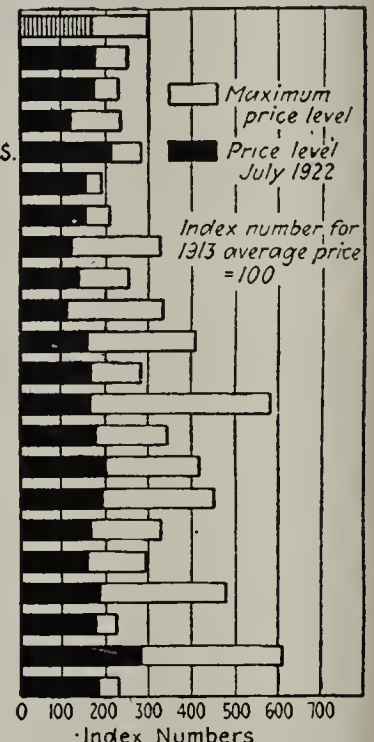
"The average annual increase in the total capacity of all the freight cars in the country in the five years ending with 1907 was five million tons. In the seven years ending with 1914 it was less than $3\frac{1}{2}$ million tons. In the seven years ending with 1921 it was only one million tons. In 1921 it was only 500,000 tons.

"These figures indicate clearly how increases in the power of locomotives and capacity of cars have declined until they have almost ceased. The development of the other facilities of the railways has declined in equal proportion. The increase in the total tractive power of locomotives was less

than one-half as great in the seven years ending with 1921 as in the seven years ending with 1907. The increase in the total capacity of freight cars was only one-fifth as great in the seven years ending with 1921 as in the seven years ending with 1907. No man in his senses can expect the railways, in view of these facts, to deal successfully with anywhere near as large an increase in freight as they easily dealt with when business revived after the panics of 1893 and 1907, and after the depression of 1914 and 1915."

Building material index

Brick, common at kiln, Chicago
Gravel, average for U.S.
Hollow tile, Chicago
Lime, common, lump, average for U.S.
Portland cement at plant
Building sand, average for U.S.
Bars, reinforcing, Pittsburgh
Nails, wire, Pittsburgh
Structural steel, Pittsburgh
Douglas Fir, No. 1, at mills
Hemlock, No. 1, Northern Chicago
Lath, yellow pine at mills
Red cedar shingles at mills
Oak, white, plain, Cincinnati
Yellow pine flooring at mills
Plate glass, New York
Window glass f.o.b. works
Linseed oil, New York
Putty, New York
Turpentine, New York
White lead, New York



Relative Wholesale Price Index Numbers of Materials for July, 1922.—Taken from Engineering News-Record.

IMMIGRATION MUST SOLVE LABOR PROBLEM

Employers in many widely separated sections of the country are exerting pressure to have the gates of this country thrown wider to workers from foreign nations, but manufacturers generally believe that relief of labor shortage from this source could not be secured until well into the coming year under the most favorable conditions.

The shortage of common labor is more easily explained in view of the figures showing the volume of transatlantic travel, which were made public recently and which show that while first and second-class traffic increased, third-class passenger travel lost 321,093 passengers up to November 1 as compared with the corresponding period of last year, with a loss in passenger revenue to the steamship lines of nearly \$24,000,000.

* * *

PLANNING SIMPLIFICATION IN DRAIN TILE

The various member bodies of the American Engineering Standards Committee have been requested to propose specific subjects for which simplification would be an advantage to industry. It is planned to address the offices of the various standing committees of the American Society for Testing Materials requesting them to bring this matter

before their committees and to transmit any suggestions for projects to the Executive Committee. The society has proposed one project, that of reducing the number of standard sizes of drain tile, a matter which is now under active consideration in Committee C-6 on Drain Tile.

A subcommittee has circulated a questionnaire among manufacturers and users of drain tile and plans to review the situation thoroly at an early meeting.

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COST OF UNION vs. OPEN SHOP LABOR

Some interesting comparisons between the cost of construction work done with open shop labor and strictly union men have been made by Leonard C. Watson, president, Aberthaw Construction Co., Boston, in The Constructor. Some striking examples are set forth here.

Brick Partition Walls on Concrete Base
(8" and 12")

Masons' pay \$1 per hour—20 brick per cubic foot.
Job 1149A—In summer of 1919—Approximately 9,000 cu. ft. with closed shop. Cost labor per cu. ft.\$0.985
Job 1163A—Mid-winter of 1919—Approximately 13,000 cu. ft. with open shop. Cost labor per cu. ft. 0.460

Laying Up Terra Cotta Tile Partitions

Job 1149A—In 1919—6" and 12" terra cotta, union masons, per cu. ft.\$0.534
Job 1177—In 1919—8" terra cotta, non-union masons, per cu. ft. 0.196

Two Coat Cement Plaster On Tile

Job 1149A—1,300 sq. yds. of interior work, union plasterers. Cost of labor per sq. yd. \$1.53
Job 1117—1,500 sq. yds. of interior work, non-union plasterers. Cost of labor per sq. yd. 0.743

Placing of Slab Reinforcing Steel

(Based on average weight per ft. of bars)
Job 1150—0.9 lbs. of steel per sq. ft. Union steel setters. Cost labor from store-yard to place in floors per ton\$30.10
Job 1093—0.825 lbs. of steel per sq. ft. Non-union steel workers. Cost labor from store-yard to place in floor per ton 14.36



The Building Situation

NOVEMBER building operations in the New England district hold up well with the activities of the preceding month, October, which showed a total volume of work of more than \$26,400,000; while this is a decline of about 13 per cent. from the September figures, the reduction can be attributed almost solely to the seasonal change. Present construction is approximately 25 per cent. more than at this same time a year ago.

A compilation of figures shows that the total construction placed under way in this territory for the first ten months of the year is \$286,000,000, as compared with \$205,200 000 for the entire year of 1921. Projected new work at the present time indicates a gross amount of over \$50,000,000, or more than double the figure during the autumn season just past.

New York

In Greater New York, Long Island and Queens are showing particular strength with new factory buildings, and recent contracts involve more than \$10,000,000. October figures for the five boroughs, aggregating \$30,000,000, are being dupli-

Relative Advantage or Disadvantage of the Brick
Producer in Exchanging Brick for Other
Commodities.*

	1909-14	1915-18	1919-22†	1909-22‡
	%	%	%	%
Anthracite coal.....	—3.5	12.5	‡31.1	‡9.9
Bituminous coal	—1.1	—21.0	§7.3	§—4.7
Chrome leather	—5.8	—42.5	—4.1	—16.1
Sole leather	—5.5	—22.3	37.4	1.1
Pig iron	—0.5	—21.5	31.5	1.9
Cattle	—6.8	—15.6	38.5	2.8
Cement	—5.1	1.2	12.1	1.4
Coffee	—0.9	36.1	50.9	23.8
Copper	—1.2	—30.6	60.1	6.6
Cotton	—1.1	—7.7	30.5	5.5
Gasoline	—4.9	—17.6	28.5	0.3
Petroleum	—4.1	—18.9	10.0	—4.8
Pork	—4.8	—14.3	37.5	3.8
Silk	—3.7	—3.2	21.9	3.3
Sugar	—2.2	—6.0	34.1	6.5
Wheat	—2.1	—3.0	32.5	6.9
Wool	—1.3	—35.7	40.7	—0.1
Steel billets	¶0.9	—37.6	39.1	¶—0.2

*Advantage with the brick producer unless otherwise indicated by a minus sign (—).
†Including the first 8 months of 1922.
‡Including only the first 4 months of 1922.
§Including only the first 7 months of 1922.
¶1909 omitted.
This table was compiled by the Bankers' Economic Service of New York.

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PROTEST BRICK TARIFF

The American Face Brick Association, Hollow Building Tile Association, Ohio Paving Brick Manufacturers' Association, Eastern Paving Brick Manufacturers' Association, and others have protested against schedules, principally published by lines in official classification territory, proposing cancellation of rule for constructing combination rates on brick and articles taking brick rates and related articles. The commission, by order entered in I. & S. Docket No. 1665, has suspended the schedules from October 16, 1922, and later dates until February 13, 1923.

New Jersey

Current construction thruout New Jersey remains at a satisfactory status, and there is heavy work in sight for the winter months, particularly in the northern district. Operations at Newark show a gross of \$23,700,000 for the first ten months of the year, with present account from \$3,000,000 to \$4,000,000 a month. Jersey City, Hoboken and Bayonne are recording high increases over operations at this time a year ago; these cities showed over \$1,200,000 for October work, with November closely corresponding. At Paterson, the building permits are running over \$500,000 a month, and at Trenton, close to \$600,000 a month.

Philadelphia

The close approach of the winter season has brought no recession in building activities at Philadelphia, and banner days, showing as high as \$800,000 in new operations, are being recorded at the local building department. Brick dwellings hold their lead, and are easily the feature of the situation. The \$100,000,000 building year will come to pass unquestionably.

Cities in Eastern Pennsylvania continue to record notable advances in construction, as compared with this same time a year ago. At Allentown, the average is around \$300,000 monthly; at Harrisburg, \$200,000; Lancaster, \$300,000; and York, \$100,000. October permits at Reading reached \$350,000, as compared with \$160,000 in this same month of 1921; and at Scranton, \$300,000 in October as compared with \$66,000 a year ago.

Face brick plants in the Central Pennsylvania district are experiencing considerable difficulty in connection with the freight car shortage and shipments at a number of yards are far behind.

Baltimore

Factory construction at Baltimore is assuming prominence in the weekly records at the local building bureau, and the slight falling off in residential work is more than compensated

in this respect. Valuation of new construction in October was \$3,810,500, as compared with \$1,776,000 in this same month last year. November figures, according to all present indications, will closely approximate the October total.

Washington

The local building department reports a heavy filing of plans for new buildings for current account, averaging well over \$3,000,000 for the month of November, and with indications for a still heavier month in December when a number of projects of commercial character will mature. Brick residences are being constructed in large blocks in the suburban sections, and local brick producers, with yards over the line in Virginia, are maintaining active manufacture to supply the call. Heavy deliveries are being made in the city by fleets of motor trucks.

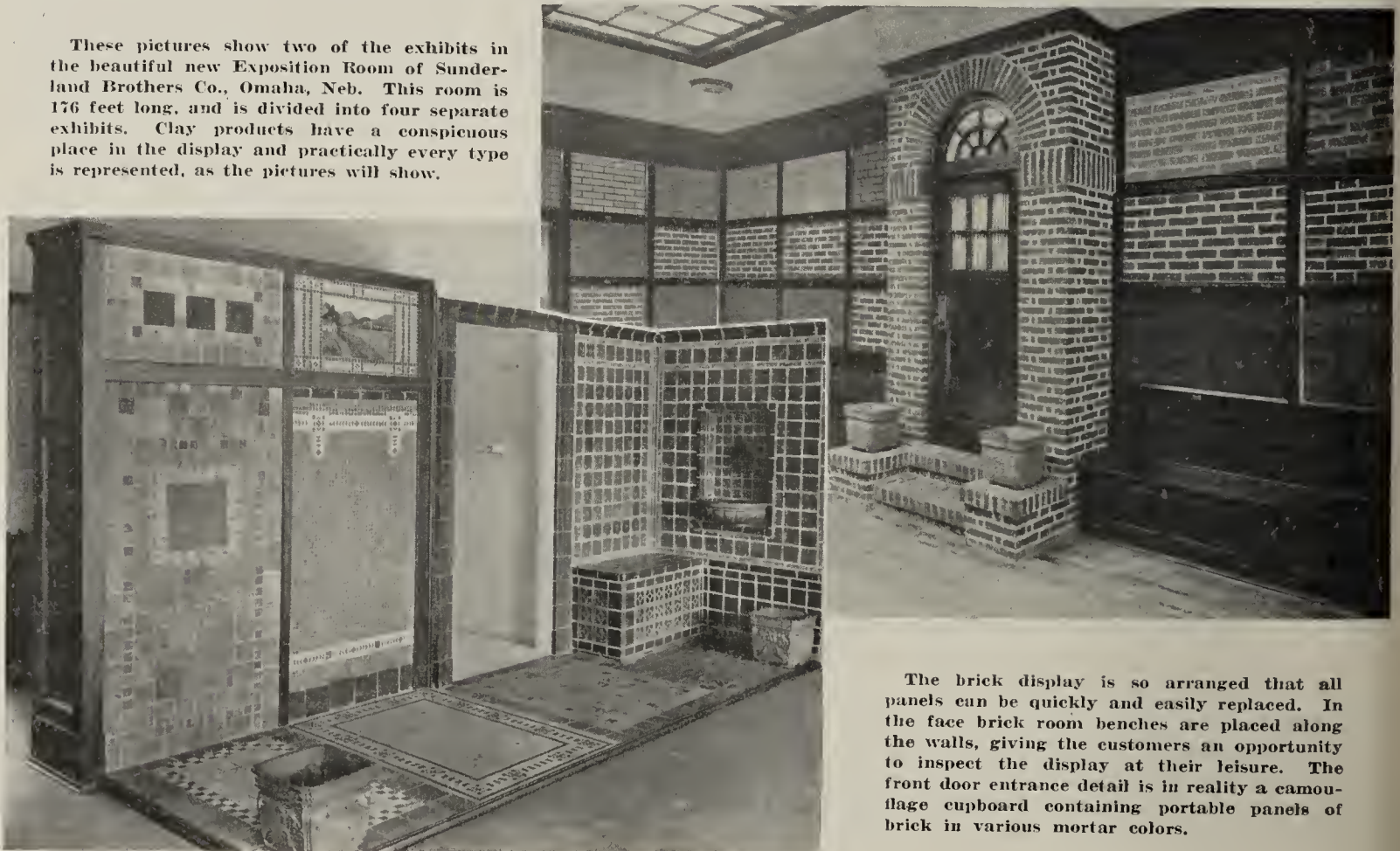
Chicago

According to reports issued by the Citizens' Committee to Enforce the Landis Award, building permits in Chicago and its important suburbs, for the first 15 days of November, totalled \$11,216,812. "This," said General Manager F. W. Armstrong, "is at the rate of \$22,000,000 for the month. The figures for October for the same territory amounted in round numbers to \$17,000,000. This increase at a time when winter is approaching is remarkable. It is due in part to the mild winter and in part also to the realization by the building public that the strike evil has been eliminated from this industry.

Birmingham

Birmingham will spend \$1,000,000 on the erection of new school buildings, the work to commence at once. The money is already in the hands of city officials from the recent sale of school bonds. Five new school buildings are to be erected, the contract for two having been already let. The contracts for the other three will be let within a short time. These buildings will be in addition to a number of school buildings already completed or nearly so.

These pictures show two of the exhibits in the beautiful new Exposition Room of Sunderland Brothers Co., Omaha, Neb. This room is 176 feet long, and is divided into four separate exhibits. Clay products have a conspicuous place in the display and practically every type is represented, as the pictures will show.



The brick display is so arranged that all panels can be quickly and easily replaced. In the face brick room benches are placed along the walls, giving the customers an opportunity to inspect the display at their leisure. The front door entrance detail is in reality a camouflage cupboard containing portable panels of brick in various mortar colors.

Burn 25,500 Gals. Oil Daily in Kilns

All Brick Manufactured in Detroit Burned with Oil—Produce Better Ware and Shorten Burn Time

FOR MANY YEARS all of the brick made in Detroit have been burned with oil, in fact many of the operators do not remember when any other fuel was used. An explanation of the reasons for this action and also a description of the methods employed and the results attained are very interesting at this time because of the increased investigation into the benefits of fuel oil.

There are eight companies operating eleven plants. The production totals about 850,000 brick per day and since the oil consumption averages about 30 gallons per thousand the total consumption equals about 25,500 gallons per day. The oil storage capacity varies from 11,000 to 400,000 gallons to a plant.

All of these plants make soft mud common brick by machine. In some cases the machines are of the hand dumping type and in others the automatic dumping machines are in use. The hand dumping machines produce 33,000 brick per day and the automatic machines 54,000 brick. In addition the automatic machines use three and at times only two men, whereas the hand dumping machines require five and six men.

Brick Dried in Steam Dryer

The brick are dumped onto pallets either six or seven to a pallet. These pallets loaded with the brick are carried by means of wire rope carriers to the drying rooms, where the pallets are removed by men from the carriers to the drying racks. The racks consist of one-inch pipe placed in parallel lines five wide and fourteen high. The racks are just as wide as the pallets are long and spaced so that one row of pallet fits upon each layer of pipe. This is the standard method of drying soft-mud brick on pallets by steam.

Since the brick are dried in 24 hours this method requires about eight inches of 1" pipe for each brick made. The total amount of pipe used for this purpose exclusive of headers and connecting pipes is approximately 575,000 feet.

The brick in most of the plants are set so that the distance center to center of benches is the same as four brick, that



Storage Tank for Fuel Oil at Common Brick Plant of Mercier-Bryan-Larkins Brick Co., of Detroit. The Tank Is Approximately 20 Feet High and 50 Feet in Diameter. It Has a Capacity of 400,000 Gallons.

is the bench itself consists of two brick and the arch or opening also consists of two brick. In some cases the bench consists of three brick. The arch is built eight courses high before any overhangers are started. Then the ninth, tenth and eleventh courses are corbelled so that the brick on the eleventh course touch end to end and the twelfth and succeeding courses are set entire and complete. It is peculiar that all

courses above the twelfth are set as headers, that is, the length of the brick is at right angles to the width of the kiln.

Kilns Set 42 to 47 Brick High

These upper courses are set tight with little space for the products of fuel consumption to escape. This type of setting is necessary when burning up-draft kilns with oil in order to prevent the escape of too much heat. It would be impossible to produce good brick with this same setting when burning with coal, on account of the fact that some outlet must be provided for the smoke caused by coal.

The kilns are usually set about 42 to 47 brick high with two brick flat on top. The scoving consists of one brick, that is



Gasoline Locomotive Used at the Plant of the Haggerty Brick Co., of Detroit. This same type of Locomotive Is Used on Most Plants in That City.

a wall of about eight inches, and a peep hole is usually placed in the scoving at about the level of the tenth course.

All the plants use practically the same type of burner, that is one in which the fuel is fed thru a central opening and the steam is fed around this central port or opening. One plant has improved this type of burner by installing a patented combustion nozzle. This nozzle, it is claimed, has reduced the oil consumption from approximately 33 gallons per thousand to about 26 gallons per thousand. It consists simply of a cast iron circular piece 12 inches long and of six inches outside diameter. Around the burner are two spiral air intakes which draw in air by means of the pressure exerted by the steam. This nozzle, it is claimed, produces a gas from the oil. It is believed that the consumption of the gas makes a hotter fire than when the oil is burned without this nozzle. This, of course, reduces the cost. It is also claimed that oil as heavy as 24 deg. Baume can be used with this additional attachment. The other plants aim to purchase oil from 26 to 30 deg. This nozzle has been in use since February 1, 1922.

Oil Subjected to Reheating

The oil is fed by gravity in most cases from a tank equipped with a continuous coil of copper tubing. In many cases the exhaust from the pump which forces the oil from the storage tank to the pressure tank is used to heat this coil. Part of the exhaust from the main engine is turned into the storage tank also, in order that the fluidity of the oil shall be as great as practical. If possible these plants buy thinner oil in winter than they do in summer. The pressure tank usually has a capacity of about ten barrels and feeds the oil to the burners at about 60 pounds pressure. The steam for atomization is usually at about 60 or 70 pounds pressure.

The usual practice is to start one side of the kiln about five hours ahead of the other side. This prevents raising the heat too fast. In starting each burner a brick is stood on end in the direct path of the flame just inside of the setting for about 24 hours. This is done to deflect the heat upwards along the outside wall of the kiln. It has been found that it is comparatively easy to obtain the proper heat in the center of the kiln, whereas if the center is heated up first it is hard to finish the outside.

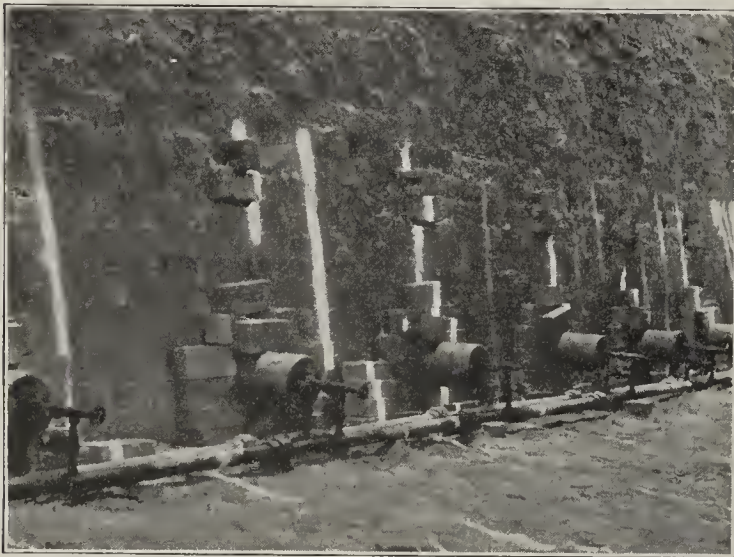
Use Oil in Kilns—Coal in Boiler Room

One peculiar feature about all of the Detroit plants is that while all of them use fuel for burning their ware, every one of them uses coal in the boiler rooms. When asked about the reason for this they state that on a basis of cost of fuel only, coal is more economical than oil. In boiler operation, cost of fuel is practically the only feature to be considered. In kiln operation, however, many other factors govern the decision. These can be summed up as follows:

The kiln output will average 90 per cent. hard brick. One row of soft brick on each end is about all that is usually found. This of course increases the value of the kiln output considerably. Oil produces a more uniform color.

As a consequence of this uniform burn no labor is required for sorting the brick. This is an additional saving, and is an especially attractive item to companies producing common brick exclusively. Coal fired brick cannot be sold as kiln run brick without large chances for complaints on account of non-uniform color. Coal fired kilns always produce some clinkered brick. The brick in the arches of oil fired kilns are the same color as in the rest of the kiln, and can be mixed with the other brick without danger of complaint.

The heat in the kiln can be controlled very much better with oil than with coal. All of these brick are burned in up-draft kilns. With the scove type of kiln as used at Detroit, the brick can be handled to trucks, wagons or cars much cheaper than if permanent clamp kilns are in use. The use of coal requires a thick permanent wall of the clamp type. These kilns can be emptied only from the ends, and this is more expensive than where the brick can be loaded in any direction.



The Burners in Place on the Side of Up-Draft Kiln at the Plant of the Wm. Clippert Brick Co., at Detroit. These Show the Patented Nozzle, Spoken of in the Text, in Place. The Light Streaks Are Caused by Sun Light Thru the Cracks in the Shed.

The use of permanent walls and permanent fireboxes also entails large outlays and expenses for repairs and upkeep of the fireboxes.

Oil Reduces Labor by Half

The use of oil as fuel requires at most one-half of the labor necessary for coal burning. In addition to the fact that one man on each shift will burn as much ware as two or three men, using coal, there is the added saving in the fact that no

fuel is to be moved to the kiln or ashes taken away.

The labor of burning with oil is very much easier than with coal. As a result the class of labor attracted to this work is of a higher grade and it is easier to find men for this work. This is a very important item in these days of high wage rates and scarcity of labor.

In comparing oil and coal for fuel there are several points to be considered in addition to the cost of a B. t. u. of the two fuels. It is conservatively estimated that coal for burning clay ware is consumed at approximately 35 per cent. of full efficiency. This takes into consideration the losses in smoke due to watersmoking, in cleaning fires, the fact that coal firing



Power Plant of Mercier-Bryan-Larkins Brick Co., Showing Coal Unloader for Boilers, and Tank Cars Containing Fuel Oil for Burning Brick.

is intermittent and the temperature varies, and other causes. On the other hand it is estimated that oil is burnt at approximately 65 per cent. of full efficiency.

70 Pounds Steam Pressure Required

A 40 H. P. boiler is required to supply sufficient steam for 50 oil burners. This equipment will generate steam at 70 pounds pressure and atomize 20,000 gallons of oil in five days. The coal required for this steam will equal about 100 pounds per hour or about six tons for the five-day period.

One Detroit plant a few years ago tried coal burning for a short period and found that they required 25 tons of coke and 50 tons of Pittsburgh coal for 500,000 brick. This would make an average of about 300 pounds of fuel per thousand brick. On a basis of \$10 per ton this would equal \$1.50 per thousand, compared to \$1.80 for fuel oil burning, figured on a basis of 30 gallons at six cents per gallon. Possibly the coal and coke cost would not run that high, but they claim that the other savings and improved quality more than offset any higher cost of the oil.

The plants making 33,000 brick use a horse or mule to pull the clay from the pit to the plant, but those making more brick generally use a gasoline locomotive. It is customary to have two engines for each locomotive and to change these at various intervals, generally about every six months. One plant reports that the engines last for eight years. These locomotives haul a little more than four tons to a trip on the average.



PORTO RICO WANTS CERAMIC WARE

The Foreign Trade Bureau of the Philadelphia Commercial Museum, Thirty-fourth Street, Philadelphia, Pa., reports an inquiry from San Juan, Porto Rico, for crockery, enamelware and glassware products. Full information is available upon request to the bureau.



NATIONAL DOUBLES OUTPUT THIS YEAR

The output of the National Brick Co. of Laprairie, Quebec, has been more than doubled this year as compared with last year. A considerable increase in orders from Eastern Ontario has been noted.

Teaching Folks How to Acquire a Home

Five Reel Film Featuring Brick Will Spread "Own Your Home" Idea — Story Takes Audiences Thru All Stages Toward Completed Home

OUT OF THE MAZE of Own Your Home propaganda developed and put before the public in the last two years the Atlas Educational Film Co., of Oak Park, Ill., has evolved a remarkable scheme which is destined to sell the idea of owning a home to even the most obstinate apartment-dweller. This company is now producing a five reel feature film which will demonstrate graphically all the disadvantages of living in an apartment and point out the advantages of owning one's home. An interesting love story is used as the vehicle to carry the own your own home idea.

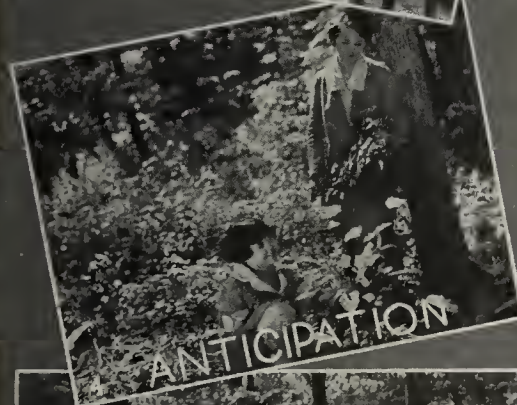
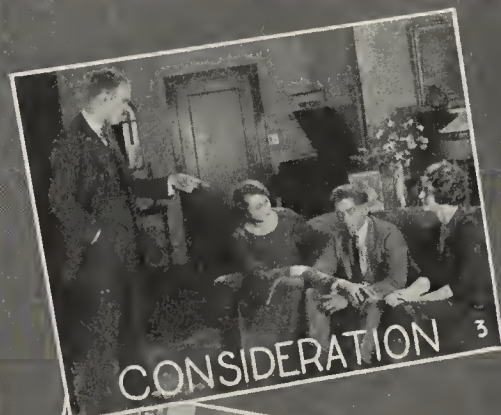
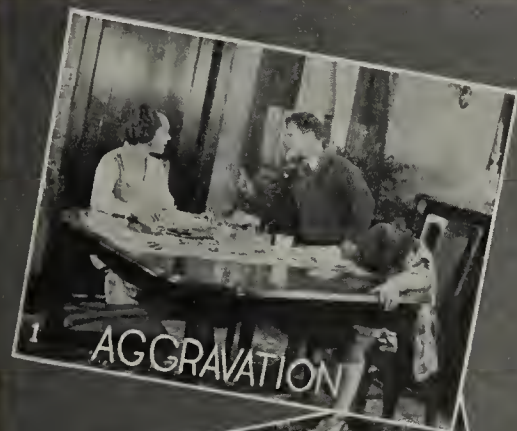
The scenario of the film, which is as interesting as any popular feature film, is woven around the life of a young couple who try to raise their children in the atmosphere of the apartment. The young mother is thoroly sold on the idea of owning a home but her husband is of the type who can see a greater value in rent receipts than in the monthly payments which will make his wife's dream of a home a reality. The woman, of course, finally wins out and then the audience is taken thru all the steps necessary

for the construction of a home. The real estate agent, the building and loan organization, the architect, the contractor, and all the other agencies which are essential factors in the building of a house, are pictured. Thus the story brings before the public every stage thru which a home passes on the way to its final completion.

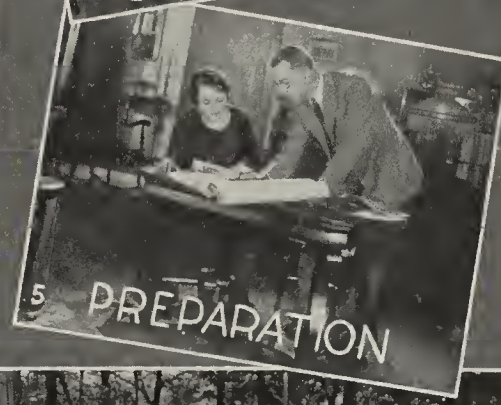
Will Teach People About Financing

There are millions of individuals who are desirous and anxious to own their homes but have either postponed the day or given up the idea entirely because of what seemed to them the insurmountable obstacles of high cost and lack of capital. This film will clear up the mysteries surrounding the building of a house, for the benefit of these people. Not only will it be an education in the method of financing a home but the house itself will also teach correct construction and the proper use of materials.

The story is portrayed by experienced actors of the screen world and from the standpoint of a moving picture produc-



Five Stages Thru Which Many an Apartment Dweller Passes on the Way to the Building of a Real Home, Which Is the Realization of Every Woman's Dreams. These Pictures Are All Taken from the Film Entitled "The Great Idea" Which Is Being Produced by the Atlas Educational Film Co. to Promote the "Own Your Home" Idea.



tion leaves nothing to be desired. There is nothing imaginative about the story for it is built around a home which is actually being constructed in Glen Ellyn, a suburb of Chicago. All materials entering into the construction of this home are supplied by competitive interests in the construction field and all companies contributing will receive recognition. The house is to be as nearly ideal as it is possible to make it, a special feature being the installation of all modern electrical conveniences. Some 200 electrical outlets, lights, floor plugs and side plugs will make all electrical appliances so easy to use that the house might be designated the "Home Electrical."

Home Entirely Brick

The home, which is now rapidly being completed, is colonial in design, built of brick and fireproof thruout. The construction is extremely interesting from the brick manufacturer's point of view as the entire building is set on brick foundations and all basement partitions are of brick. The exterior walls are faced with rough textured brick and backed up with eight inches of common. The house will be two and one-half stories high. There will be three large rooms and a hallway on the first floor, three large bedrooms and a bath on the second floor and two maid's rooms and bath on the half story. In addition there will be a large solarium and a smaller breakfast porch on the first floor.

Film to Be Shown Everywhere

The film will be shown all over the country under the auspices of and with the cooperation of real estate boards, commercial, advertising, Rotary, Kiwanis, Lions and other clubs and organizations; also thru official government non-theatrical distribution bureaus (one located in almost every state, usually the State University) thru churches, community centers and other mediums. Also if any manufacturer would like to present the film in his own locality he can arrange for its presentation with the Atlas Film Co.

The entire proposition is of the greatest interest to the clay industry inasmuch as the house is being built of brick and will therefore be a wonderful boost for this material. The American Face Brick Association and the Common Brick Manufacturers' Association are both vitally interested since the brick being used are the products of members of these organizations.

The Atlas Educational Film Co. hopes to complete the film and the home early in 1923 and will begin distributing it immediately after its completion.



FACE BRICK MANUFACTURERS AND DEALERS WILL JOURNEY TO WEST BADEN

All arrangements have been completed for the American Face Brick Association meeting at West Baden, Ind., December 5, 6 and 7, and the stage is set for an excellent convention. Indications are that the attendance will be large and representative. Those attending are assured of a program which is replete with vital subjects.

Face brick manufacturers and dealers of Cleveland and Cincinnati will have a strong representation at the gathering. The Cleveland contingent, thru R. L. Queisser, Jr., has accepted the invitation of Walter Pursell, of the Cincinnati Brick Club, to be the guest of that organization on December 4. In Cincinnati reservations have already been made for five cars to make up a special train which will carry the delegates to the scene of the fray. The committee in charge of arrangement, consisting of John P. Turpen, John M. Stoner, Lawrence Wilde and D. C. Shorey, urges that all Eastern, Southern and Northern delegates take advantage of the Cincinnati Brick Club's invitation to be its guests on the evening of December 4 and depart by special train from Cincinnati to West Baden.

The meeting at West Baden will also be the occasion of the Face Brick Dealers' Association's annual meeting. Preliminary reports from the dealers leave no doubt in mind that the attendance will be anything but excellent. President Burt T. Wheeler reports that he has received a remarkable response to the official invitation for this meeting which has been sent out over his signature. It is the plan of the officers of the Face Brick Dealers' Association to put new life into the organization and make it once again the vigorous and valuable association it was some years ago. It is of course highly desirable that the dealers be solidly organized and to this end every one should give his unqualified support.

Why Not Pay Us a Visit?

On the way to the American Face Brick Association convention at West Baden, Ind., stop off at Chicago and drop in the offices of Brick and Clay Record. We would like to get better acquainted. Transportation facilities from Chicago to West Baden via Monon Railroad are excellent and you will lose no time. It is a convenient overnight's trip from Chicago to the convention.

C. A. BOWEN TELLS OF CONDITIONS IN U. S.

Chas. A. Bowen, assistant to the president of the Common Brick Manufacturers' Association, has just returned to the Cleveland headquarters after an extended trip of eight weeks thru the Middle West, Southwest and West coast States, in the interest of the association.

Mr. Bowen reports that in most sections he visited building conditions were very good, and that there is an increasing desire upon the part of the building public thruout this section to use brick in all their projects. Particularly is this true in California, Oregon and Washington, where not only the advertising of the C. B. M. A. is making itself felt, but where the manufacturers of brick in each section are doing much group advertising in the interests of brick, using the association's material in helping to create this demand. The increase in brick homes is very noticeable, not only of the small type, but of the more expensive and larger sized type.

In the strictly agricultural sections business has not been so good on account of the financial conditions of the farmers, but this condition is improving and prospects are looking much better continually, for future good business. A very wide-spread interest among brick manufacturers is evident in the outstanding features of the association's work in advertising, building code correction, cost accounting, size standardization, and the establishment of bricklayer apprenticeship schools. Of the latter feature there is a great need, and classes are being established in many of the large cities, in connection with high or technical schools, fostered by local brick manufacturers, mason contractors, and the bricklayers themselves. Very effective work is being done and the interest shown by the scholars is very gratifying to their sponsors.

Both Salt Lake City and Denver are cities which are very largely built up of brick construction, but the brick manufacturers of those cities realize that continued effort on their part, and the part of the C. B. M. A., is desirable to keep them in that condition. In Colorado a State association of brick and other clay products manufacturers has just been formed to add further weight and cooperative effort in this direction, and thruout the State good results are confidently expected.

The interest of brick manufacturers everywhere in the future work of the C. B. M. A., and the willingness to support it was quite evident. Many new members were added to the association's roster.

Getting Rid of Boiler Scale

Permutit System of Water Softening Makes Shutdowns Due to Scale Unknown—Saves from 6 to 30 Per Cent in Fuel

Ernest M. Rowe

ONE BY ONE the old "necessary evils" of industrial operation are being relegated to oblivion unless some museum preserves a specimen as a curiosity of the past. Among them boiler scale now takes its place in the glass cases of the museum. A new generation of boiler room and power house men may read about it in their books but they won't know anything about it from the gladsome Sunday experience of chipping it off boiler tubes and scraping it by the bucketful out of heaters and pumps. That day is not yet in the distant future, but indications are that it soon will be. There's many a plant already where all that is done about scale is that once every so often the fireman dumps a barrel of common salt into the feed water softening attachment and turns two or three valves which reverse the flow of the feed water so it will backwash thru the zeolite tank for a few hours.

Permutit Softening System

That is what is known as the Permutit System of water softening which makes use of a peculiar property possessed by zeolites. Zeolites are a sodium aluminum silicate having the peculiar property of absorbing the scale-forming mineral constituents dissolved in water which is allowed to percolate thru them in the granular, sand-like form in which they are used. After each capacity run, exhausting or saturating the zeolites, their power of absorption is fully restored by the simple act, already mentioned, of dumping in common salt and backwashing with the brine thus formed. The zeolites themselves do not waste. This being the only attention the zeolite water softener requires and requiring no skill, the zeolite process for softening water is not one of those too familiar devices or processes which do wonders under the close attention of experts but in ordinary practice give un-

Large power plants, such as the waterworks pumping station at Springfield, O., and a paper and pulp mill in the Southwest, formerly either had to have a spare boiler that could lie idle for a week for cleaning, or every Sunday was given over to a hard day's work at that job. Now the cleaners and their tools are no longer needed, and scale-cleaning on



What Hard Water Does to Your Boiler Pipes. This View Has Not Been Retouched but Is an Actual Photograph of Scale in a Pipe.

Sunday or any other day is a thing of the past. At the paper mill mentioned, the carefully measured consumption of fuel gas per pound of water evaporated, shows a saving of six per cent. on that item, and the former monthly bill of \$150 to \$200 for boiler compound is merely a memory; two boiler cleaners who were constantly employed, and the usual replacing of at least four damaged tubes each month, are conspicuous by their absence. Space does not permit quoting any more of hundreds of statements by practical boiler room and engine room men who are enjoying the use of boiler feedwater softened by this process. Without exception they report the absence of scale in the boilers, the feed water heater, piping, pumps, and so forth. It stands to reason that water with no hardening minerals in it will not form scale. It cannot. The scale-forming materials are absent.

Practical men operating plants on which the Permutit System has been installed, in giving their experience, say things like this: "The other day our engineer called me out to see the condition of the boilers. There was no scale to be seen anywhere. If they had been new they could have looked no better. Perhaps I am a little too enthusiastic about the Permutit System, but after so much trouble with boilers



A Permutit Installation for a Boiler Plant Which Operates Continuously. One Unit Regenerates While the Other Is Operating.

satisfactory service, especially in isolated plants far from the reach of the expert fixers.

Savings in fuel and improvements in duty, due to the use of this absolutely soft water, range all the way from 6 to 30 per cent. Savings in repairs and labor are additional.

it seems so good not to have any more trouble that I cannot say enough. We have more than saved the cost of the system in coal alone in the three years we have had it." Those are the remarks of C. N. Fanning, manager of the Curtice Brothers Co.'s branch cannery at Bergen, N. Y. He says further: "The Permutit System was put into the Bergen plant on account of the water being so hard. It was so hard you could break it with a hammer: 36 grains of hardness to the gallon."

Boiler feed water at Cortland, N. Y., is not extraordinarily hard, according to E. A. Brewer, president of the Brewer-Titchener Corporation. Nevertheless they had the common experience of constantly replacing boiler tubes, with the inevitable trouble and expense attendant and sometimes a shutdown. Permutized water, completely softened by the zeolite process, entirely rid them of all that trouble and inconvenience. For over three years not a boiler tube has needed replacing, and no other repairs of any kind have been required on the boilers. State and insurance boiler inspectors report the boilers in excellent condition, free from scale, mud, sludge and oil.

What is especially interesting about the system is that it can be used in the smallest as well as the largest boiler plants. In other words, it can be made to pay a profit if installed in the dwelling just the same as it could in a thousand horse-power boiler plant.



NO CUSTOMS TAX ON SILICA, MAGNESITE AND CHROME FIRE BRICK

At a meeting of the Board of Customs just held at Ottawa, Can., the following declaration was made in reference to fire brick:

Declared that silica fire brick (composed of not less than 90 per cent. of silica), magnesite fire brick, chrome fire brick, are of a class or kind not made in Canada and are entitled to entry free of customs duty under tariff item 281. All other fire brick are held to be of a class or kind made in Canada and subject to duty under tariff item 282. This ruling not to apply to fire brick bona fide ordered prior to November 1, 1922, and entered for consumption prior to January 1, 1923.

Item 281 says: Fire brick of a class not made in Canada—Free under British Preferential, Intermediate and General Tariff.

Item 282 says: Building brick, paving brick, and manufacturers of clay or cement N. O. P.—British, 12½ per cent., Intermediate 20 per cent. and General 22½ per cent.

Demand for extra copies of the October issues of Brick and Clay Record has been so great that our files have been completely exhausted. Brick and Clay Record will pay 50 cents for each copy of the October 17 and 31 issues returned.

ANNOUNCE SHORT COURSE IN CERAMICS.

The College of Mines, University of Washington, at Seattle, announces its 27th Annual Winter Mining Session, which will begin January 4 and continue thru to March 21, 1923. Subjects which are taught include quartz mining, placer mining, coal mining and ceramics. Under the latter the following branches will be taken up:

Clay testing; lime, plaster, cement; common and face brick; stoneware; whiteware; refractories; glaze studies; clay technology; terra cotta manufacture.

Expenses consist of laboratory deposits for material actually

used and university fee of \$20. No previous training is required for entrance. Anyone who can read and write English may enroll. A postal card to the College of Mines, Seattle, Wash., will bring full details regarding this session and the regular university courses.



ASSOCIATION MEETINGS AND THE PRESS

The question "Whether it is desirable to invite representatives of the press to the meetings of trade associations" is discussed in an editorial appearing in a recent issue of the Timber Trades' Journal, of London, England. On this side of the water the question is no longer an issue, as even those associations that once maintained a policy of semi-secrecy now realize that truthful publicity is the food on which legitimate business organizations thrive. Indeed, there is danger in a contrary course, as our British contemporary points out in the following salient paragraphs:

"We think that many of the associations connected with the wood trade are inclined to be too cautious in their avoidance of publicity. The refusal to admit a member of the press at whatever kind of meeting not only creates suspicion as to the meeting's bona fides, but it also has the effect of doing more harm than if the newspaper man were present. He learns outside, perhaps, half or three-quarters of the story, which he prints, and which creates probably quite an opposite effect to the report that he would have given had he been aware of the full facts.

"Publicity is the breath of life to trade associations. 90 per cent. of the associations existing today would never have seen the light but for the publicity given by the press, free, gratis and for nothing; and those that are alive today are kept so by the attention given to them by the press."

It is, of course, true that matters are frequently discussed at trade association meetings which are not ripe for publication, but in such cases a word from the chairman to the representatives of the press present is all that is necessary to prevent any premature disclosures. Presiding officers as a rule are perfectly aware of this fact.

The closer secretaries and other association officials cooperate with the trade press representatives present at their meetings, the more accurate and generally satisfactory will be the published reports. It is no easy matter to follow the frequently involved discussions of trade subjects that feature every association meeting of any importance, and correctly to interpret the proceedings within the limitations of time and space that confront the convention reporter. Often a bit of information, a word of explanation, or even the spelling of an unfamiliar or unusual name, are courtesies not only helpful to the newspaper man hurrying to get his story of the day's proceedings into the mail or on the wire, but beneficial to the associations. As a matter of fact, most secretaries and other convention officials leave nothing to be desired in this respect, sparing no effort to cooperate with the trade press representatives present.

As only a part of the membership of the average lumber trade association usually is present at its conventions, the large number of members not in attendance must depend upon their trade newspaper for an early report of what transpired, pending receipt of the official report later sent out from the headquarters of the association. Not only that, but the industry at large expects to find in its trade papers reasonably complete reports and intelligent interpretations of all important meetings that are held. All this entails a very considerable responsibility upon the trade newspapers, a responsibility which they are endeavoring to the best of their ability to discharge, and in which effort the cooperation of association officials and speakers is mutually helpful.—American Lumberman.

FINE CERAMIC MANUFACTURE



A Department Devoted to Practical Problems in the Manufacture of Higher Grade Ceramic Products Such as Whiteware, Including Electrical Porcelain, Floor and Wall Tile, Sanitary Ware, etc., as Well as Stoneware, Terra Cotta, Special Refractories and Other Articles Where High Grade Clays Are Employed in Their Fabrication.

SAVES 50% ON TRUCKING LABOR

THE PROBLEM of handling materials in the industrial plant, regardless of character, is one of primary importance. Great waste in time, labor and other operating factors easily can ensue with the use of antiquated methods and old style equipment, just as great savings can be effected thru the adoption of modern ideas and the utilization of perfected and standardized apparatus now to be found on the market.

Probably no industry needs more concerted attention to the material handling phase of operation than the clay products field. Many branches of the industry, and many plants in these branches, are prone to rely too much on what has gone before, to utilize and employ available means without looking further, to forget that production costs are being maintained at high level, while prices are declining.

Careful Handling of High-Grade Ware Necessary

In the various divisions of ceramic operation, delicate,

valuable and easily breakable articles and materials are handled constantly in the course of the day's work. Fine china, pottery, porcelain and kindred wares demand the same refinement and care in transportation from one department to another, whether in raw or finished state, as required in manufacture.

Yet, there are many such plants that depend almost entirely on crude trucks or other conveyances, and the experience and ingenuity of human ability to execute work of this kind to the best possible degree, little realizing that the average so obtained can be enhanced to a pronounced extent by mechanically perfected means, and at a considerably reduced cost.

When steel, leather, rubber and other plants manufacturing practically indestructible products, can see the big advantages and savings of right mechanical operation for the handling and transportation of materials in the factory, surely it should be self-evident to the progressive clay working plant that possibilities in this direction frequently are being overlooked and neglected. Otherwise, prompt correction would follow.

Many Types of Factory Trucks

There are many different kinds of trucks arranged for what may be termed inner-plant service, mechanically propelled, power-driven, hand-operated, and the like. All of these have certain defined points of merit and advantage, with the ideal



Fig. 1. A Good View of Lift-Trucks in Operation at the Plant of the Robinson Clay Products Co., Maspeth, L. I.

truck, necessarily, that composite type that offers the most efficient all-around service for the ceramic plant requirements.

Potteries and other fine ceramic plants have certain conditions with which to contend, and these become the guiding factors for the intelligent selection of the proper equipment to be installed. While this might seem comparatively easy in the matter of trucks, such, decidedly, is not the case if



Fig. 2. The Truck Is Pushed Under the Load and the Load Raised by Bearing Down on the Truck Handle.

numerous present installations, seen daily, are to be taken as examples.

One of the leading potteries at Trenton, N. J., in its particular line of manufacture is that of the Cook Pottery Co., on Prospect Street, specializing in the production of electrical porcelain goods and chinaware. With the growth and development of this business, has come the installation of improved methods and equipment in all departments of operation, and that with which this article particularly pertains—the handling of materials.

The lift-truck has been found to be suited, ideally to the different standard operations at this pottery, and three trucks of this character are in daily service thruout all departments, from the handling of the raw clay to finished production. The range of travel is anywhere from two feet to 100 and more feet, with the same efficiency and economy prevailing.

The lift-truck is very simple in construction and built to stand hard and continuous service. It is formed of a structural steel frame, with wheels of standard railroad car type. Roller bearings are used to insure ease of operation, regardless of the weight of the load. The handle, made of one-piece cast steel, is so mounted on the truck frame as to give utmost flexibility and control, permitting a full 300 deg. turn when necessary. This handle remains in up-right position when not in use, and cannot drop onto the floor, being provided with an automatic safety lock.

Lift-Truck Operation

A view of the truck is shown in Fig. 1, reproducing the finished stock department at the plant of the Robinson Clay Products Co., Maspeth, L. I., which uses trucks of this type extensively in different branches of the works. From this illustration, the various features referred to will be noted.

The truck design, employing two front wheels instead of one, not only provides stability to the load, but prevents the truck from catching and sticking in any floor ruts, or from binding on the floor at turns. The wide swing of the handle, as previously mentioned, also assists in this respect, allowing the manipulation of the loaded truck in a narrow space without difficulty of any kind, or in the middle of a narrow aisle, where materials may be stocked on both sides.

The lift-truck is operated in conjunction with a platform, of metal or wood, upon which the load is placed. These platforms are simple and cheap, and are constructed so as to give a few inches of clearance when the truck, at normal height, is rolled under.

The principle of operation is almost self-explanatory, and will be understood readily from the illustration, Fig. 2, showing a load of electrical porcelain insulating tips about to be moved at the Cook pottery. As soon as the truck is entirely under the platform, the workman presses a center foot-latch, located on the handle base, between the two front wheels, which engages the handle in the lifting position. Only a slight pressure of the toe is necessary for this operation.

Following, with a single downward sweep of the handle, the load is raised clear of the floor, and when once elevated, it latches in position automatically. Taken to its destination, the load is placed readily in the exact position desired on the floor, and is released instantly by a simple pressure of the toe on the release catch. A hydraulic-operated check provides an easy and gentle motion for the platform in the lowering to the floor; there is no jar or shock, whatever, to the material on the platform, eliminating all danger of breakage.

There is ease and simplicity thruout the entire operation, the handle leverage being designed with such points in mind, both for lifting and hauling the load. Floor conditions, of course, have an important bearing in this respect, as do floor inclines and other such hindrances to travel.

The trucks in use at the Cook pottery are provided with solid rubber on the wheels, this insuring still greater ease and smoothness in operation, and particularly so where the floors in certain parts of the plant show signs of excessive wear over the period of years.

Operations at the Cook Plant

Special platform racks have been devised at the Cook pottery, as will be noted in the accompanying illustrations. These are of simple type, designed to suit the conditions at



Fig. 3. A Truck Load Arriving at the Dryer. After Unloading, Which Takes Only a Few Minutes, the Entire Rack Is Taken Back to Be Filled Again.

the plant, being formed of metal and wood uprights, as the case may be, for the respective metal or wood platforms. The racks are of small pipe, of sufficient length and spacing to carry the trays loaded with ware. The wood platforms are shown in Fig. 2, previously referred to.

Fig. 4 shows a load of material arriving at the dryer, and the simplicity of operation in transferring the loaded trays from the pipe racks to the dryer. This work is handled speedily, without any loss of time, and the entire unloading is simply a matter of a few minutes, followed immediately by

the return of the empty rack to the proper department, as scheduled and known by the trucker, for subsequent re-loading.

In the handling of raw clay and other materials to the various departments, as well as boxes of ware packed for shipment, and the like, just the platforms, free of all construction, are used, as will be understood. The different lift-trucks are alternated in the plant departments as required for the particular work at hand.

Economy and Efficiency of Lift-Trucks

Officials at the Cook pottery, from Charles Howell Cook, president, down, are enthusiastic over the value received from the use of these lift-trucks at the plant. Paul G. Duryea, vice-president, and Charles H. Lovett, secretary and superintendent, carefully guide all phases of production, plotting the day's work at the plant for greatest efficiency in manufacture, and they speak with entire justification in explaining the merits of the lift-trucks in everyday service.

It is stated that three or four men are employed as truckers at the pottery, with a cost saving closely approximating 35 cents per hour per man as compared with ordinary and inefficient means of handling materials between the different departments. The trucks, as stated, are used in all branches of the business, from the raw clay storage, finished ware departments, to and from the dryer, and so on, with the aggregate estimated labor saving totaling about 500 per cent.

The smoothness of operation, the ease of handling, and the elimination of all jar to the ware in transportation are commented upon. These are noticeable and important factors of plant economy, and are watched carefully.

Much Rehandling Eliminated

The improvement over the old style method of piling and re-piling, handling and re-handling, and the like, is so pronounced as to make one wonder why such expensive methods exist anywhere. The lift-truck easily does the work of from four to five men handling old style trucks, and in the course of a day's operation, from 50 to 100 platforms, and upwards, can be moved by a single lift-truck, depending upon the length of haul and plant conditions along the route of travel.

Using a lift-truck, the workman is really working and yet not so strenuously as to tire unnecessarily in the day's performance. He does not have to wait around while loads are being made ready; no time is lost between operations, there are no delays or tie-ups, or congestion in passageways, or in operating and stock departments.

Another feature of advantage is that of the elimination of any excessive handling of ware; when once placed on the trays, it is carried thru a number of departments, or operations, with little handling, and there is no careless piling or unsystematic handling as might otherwise easily result.

Big Savings Possible

The use of the platforms and lift-trucks inspire, as well, neatness and efficiency in plant conduct on the part of operatives; not only is there a saving, frequently, of valuable floor space, but the systematic arrangement for piling ware so easily made, goes to impress the workman of the necessity for like facility in other phases of operation. Also, when not in service, the lift-trucks themselves can readily be stored away in an unused corner of the plant, free from interference with any other work going on.

The lift-truck makes possible almost unanticipated savings in the pottery; its simplicity of performance brings equally simple requirements at the plant for utmost efficiency in operations, and which, in turn, means greater dollar value and saving for every dollar invested in plant and production.

Editor's Note.—This data on lift-trucks was secured and the article prepared by Leroy W. Allison.

BLOOMFIELD'S LANDS IN DEMAND

The clay lands of Charles A. Bloomfield, Metuchen, N. J., head of the Bloomfield Clay Co., located on the Raritan River in Raritan Township, have been increasing in prominence and demand since the advent of the Raritan Arsenal, which was established on a portion of the Bloomfield tract during the war. The Public Service Gas Co., Newark, has acquired a site of about 48 acres for the erection of a large plant, estimated to cost in excess of \$500,000, with capacity of about 10,000,000 cubic feet per day. The Bloomfield Clay Co. is reserving for itself many acres of the tract in this section for the production of its fine plastic clays.

* * *

U. S. ENCAUSTIC BUILDING ADDITION

Plans are being drawn for a factory addition and warehouse to cost approximately \$30,000 for the United States Encaustic Tile Works, of Indianapolis, of which Charles M. Cooper, is president. The building will be two stories high, with basement and will be 90 by 100 feet. It will be of brick, with heavy mill construction, a composition roof, 49 large steel windows and maple floors. The plant is located at the corner of Sixteenth and Missouri Streets.

* * *

KOKOMO PLANT OPERATES DESPITE STRIKE

Judge A. B. Anderson, of the Federal Court in Indianapolis, has issued a temporary injunction against union men of Kokomo, Ind., enjoining them from interfering with the business of the Standard Sanitary Manufacturing Co. of that city. The suit was filed late November 20. The strikers are accused of intimidating employees of the company. The Standard is the only pottery in Kokomo attempting to operate with non-union men, and the entire force of the local is directed toward closing it. The action of the Federal court is being watched closely all over the State where settlements have not been made, since the court action will have much to do with future action both on the part of the companies and the men.

* * *

STANDARD DECLARES BIG DIVIDEND

The Standard Sanitary Mfg. Co., Pittsburgh, Pa., has declared its usual quarterly dividend of two per cent., an extra dividend of three per cent., and a stock dividend of 40 per cent.

* * *

LOCKE BUILDING ADDITION

The Locke Insulator Co., Baltimore, Md., manufacturer of porcelain insulators for high-tension electric service, will commence the immediate erection of a new one-story kiln building, 18x55 feet, at its plant, located at Charles and Cromwell Streets. The building is estimated to cost about \$20,000.

* * *

C. E. JACKSON RETURNS FROM EUROPE

C. E. Jackson, head of the Chelsea China Co., New Cumberland, W. Va., has just returned from a European trip. Mr. Jackson while in Europe inspected potteries in England and Germany. Several changes will be made at the New Cumberland plant, but the manufacture of hotel ware will be continued.

* * *

G. E. HOFFMAN MADE JUDGE OF CONTEST

George E. Hoffman, Trenton, N. J., sales manager of the Trenton Potteries Co., has been selected by the local Kiwanis Club, of which he is a past-president, to represent that organization in connection with the award of a silver loving cup by a local newspaper, to the citizen who has performed the greatest community service during the year just past.

Cyclopedia News

Devoted to Enlarging the Usefulness of the CLAY PRODUCTS CYCLOPEDIA

Published by
INDUSTRIAL PUBLICATIONS, Inc.

407 S. DEARBORN STREET
CHICAGO, ILL.

ITEMS MOST INTERESTING TO SUPERINTENDENTS

The primary object to be achieved by publishing the CYCLOPEDIA is to assist in the operation of every clay products plant in this country and Canada. Since the executive in charge of operations generally has the title of superintendent, he is the man to whom all questions concerning operations are generally directed, both by his superiors and inferiors. He must, therefore, have all the information possible to give the data desired—he must have it at his fingers' tips or know where he can find it without hesitation—if he wishes to obtain the best results. This is where the CYCLOPEDIA comes in. It is full of the exact kind of information that is needed, arranged and indexed for instantaneous assistance.

Interested in Every Item

Every superintendent is interested vitally in every feature concerning the construction and operation of the plant as well as in the quality that the product must possess to command a market—in short he is interested vitally, in every page of the book—but his chief interests lie in those features for which he is directly responsible.

We will list a few of those items that are most valuable and instructive to a superintendent, devoting our remarks at first, entirely to the statistical section, and later taking up the other parts of the book. The numbers refer to the pages:

Explanation of two methods of mining clay underground.....133
Tables for gravity inclines, that is, for hauling an empty car up an incline without any power except the weight of the loaded car....196
Data for determining the size of wire rope to use on inclined planes or haulage systems.....193
The analysis of practically every make of babbitt metal, as a help to decide which is best.....193
Formula and data for determining the capacity of a winding drum.163
Tables showing the smallest diameter of drum or sheave for wire rope and the maximum strengths of the rope under various conditions198

Notes in detail concerning the planning and operation of sprocket chain drives134

Notes on design and desirable features of silent chain drives.....162

The methods of determining boiler horse power, and chart showing percentage of efficiency dependent on the temperature of the stack gases198

Extensive data on pipe coverings, giving specifications for covering boilers, drums, pipes, flanges and fittings, and also for various finishes, notes on application, and radiation losses in uncovered pipes184

Statistics covering the power that can be transmitted by wire rope drives162

Data on the power that can be transmitted by and the safe working loads of manila rope and size of snatch blocks.....193

The standard sizes of boiler tubes, and weight per foot.....197

On account of space limitations the detail of these items that affect the operation of practically every clay products plant will be continued in our next issue. These are valuable leads to the necessary information and we suggest that each reader keep them for future reference.

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Calcutta 13th. September 1922.

Dear Sirs,

We thank you very much for forwarding us a copy of the 1922 edition of the Clay Products Cyclopedia which we consider is a very comprehensive work and will be a very great use to us in many ways.

The Cyclopedia would be so very much appreciated by our various Works Managers that we should be glad to know if it would be possible for you to let us have two further copies so that they could always have the valuable information contained in this book at hand.

Yours faithfully,

Burns

Managing Agents.

Clay Industry's March of Progress

What a Few of Hundreds of Clay Plants Are Doing in the Way of Installing Systems That Will Improve Their Production Methods, Is Mentioned Briefly Here

HAULAGE SYSTEM SAVES THREE MEN

The Vincent Clay Products Co. of Fort Dodge, Ia., is installing a wire rope haulage system which will reduce considerably the cost of getting the shale into the plant. With the former digging and haulage system two men were required at the planer, two to move the cars from the planer to the plant, and one to hoist the clay and feed it to the pan. The new arrangement will use one man at the planer and one hoisting and feeding.

The rope for this haulage system will be half-inch wire rope, and it will be endless, that is long enough to run from the plant to the planer and back again. A sheave will be fastened to the planer and move with it, and a take-up will be provided to allow for a movement of 100 feet of the planer. When the planer is close to the plant this tail sheave will be anchored in the ground. A car holding approximately 5,200 pounds will haul the clay to the plant. This will be equipped with an electric contact spring to close an electric circuit when it reaches the farthest point of its travel at the planer. It will signal the operator of the hoist. The extreme distance is approximately 500 feet and it is figured to take one minute to load the car and another to unload it. The car will travel at a rate of 300 feet per minute. According to these figures it is estimated that the system will deliver 25 tons of shale per hour.

✕ ✕ ✕

ELIMINATES MAN AT DRY PAN

Monthly output of the Globe Brick Co. at Kenilworth, near Newell, W. Va., will be 25,000 daily when improvements now under way are completed.

New machinery for the manufacture of high grade dry press brick consisting of the latest style dry pan which is fed by a device that will deliver a uniform amount of clay to the pan and which does not require the attention of an employee, and new screens are being installed.

✕ ✕ ✕

BUILDS OWN DISC FEEDERS

The Windsor Brick Co. of Akron, Ohio, has installed two disc feeders of its own make. These are eight feet in diameter and one used to feed each dry pan. They are located so that one man can take care of and watch the feed of both pans. In fact the company uses only four men to deliver clay for 60,000 brick to the machine. One man operates the electric shovel, one drives the mule that hauls the cars to the bottom of the incline, one takes care of the hoisting and dumping and the fourth feeds the pans. They use two dry pans.

✕ ✕ ✕

Michael Kane, of Hartford, Conn., is building an addition to his brick conveyor.

✕ ✕ ✕

HAS COMPLETE MACHINE SHOP

The Metropolitan Paving Brick Co. has one of the most complete machine shops in the industry at its Royal plant at Canton, Ohio. The equipment consists of: 1 hydraulic press, 3 lathes, 1 planer, 1 forge, 2 hack saws, 2 shapers, 2 milling machines, 1 keyseating machine, 3 drill presses, 2 emery wheels. The building is 27 by 84 feet and is quite crowded. The second floor of this building is used for a machine shop. In another building there is a blacksmith shop equipped with the usual forges and

drill presses, suited to that work. The Metropolitan Co. has seven plants and builds most of its dryer cars, shale cars, electric transfer cars, mold boxes for represses, dies and other repair parts for all of them. Just now the company is installing herringbone gears at some points in the several factories. This company has patterns for practically all of its repair parts.

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The Sponzo Brick Co., of Hartford, Conn., will install a conveyor at its plant to facilitate handling of brick.

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REPLACES STEEL STACK WITH BRICK

The Vincent Clay Products Co., of Fort Dodge, Ia., has a continuous kiln for burning drain tile, using oil as fuel. The kiln was built with a steel stack but it was found that the sulphur gases combined with the moisture from the watersmoking process formed sulphuric acid and ate away the metal. To obviate the expense of replacements this company about a year ago replaced the 60-foot steel stack with a brick stack 85 feet high. The increased draft due to the higher stack and also to the elimination of cracks in the walls of the stack has greatly decreased the consumption of fuel.

✕ ✕ ✕

MAINTAINS FINE MACHINE SHOP

The Adel (Ia.) Clay Products Co., has a very well equipped machine shop and does almost all of its own repair work. In fact the company builds some of its cars and other equipment, in particular those that are special. The equipment in this machine shop consists of a power press for forcing wheels on an axle and pulleys on or off a shaft, a shaper, a power hack saw, a power hammer, a lathe, a drill press, and a forge.

✕ ✕ ✕

INSTALLING DUMP TRUCK

The American Vitrified Products Co. at Barberton, Ohio, is planning on installing a dump truck for hauling coal to the boiler room and to 55 round down-draft kilns. This company has a coal bin into which the coal is taken by a conveyor from the car and from which carts now haul the fuel. The dump trucks will use the same hopper.

✕ ✕ ✕

TO BUILD \$20,000 COAL HANDLING SYSTEM

The Robinson Clay Products Co. has drawn plans for a coal unloading system and trestle which it will build next spring at its plant at Mogadore, Ohio. This equipment will cost about \$30,000, but will greatly reduce the cost of handling the coal, will decrease the waste and also the loss due to the lumps breaking up, and will keep the coal more free from the dirt and impurities incident to ordinary handling.

✕ ✕ ✕

REPLACE FAN WITH STACK

During the early part of 1922 the Purington Paving Brick Co. of Galesburg, Ill., rebuilt the dryer at one plant. This dryer has 27 tracks and will dry 100,000 blocks, weighing ten pounds each, per day, allowing 48 hours for drying. It has been found that this length of drying time is necessary to have the highest



NO 132

Round heel shelf bucket for handling sand, gravel, stone, coal, etc. Used on both belt and chain elevators.



No. 131

Square heel shelf bucket for handling clay, mud, ore, etc., that would stick or pack in other types of buckets.



No. 1124

Straight trough front—pours its load instead of throwing it.

SALEM

ELEVATOR BUCKETS

When the country's largest mills ask for Salem Buckets time and time again—it proves that these are the best.

For 50 years Salem Buckets have led all competition. Because of their superior quality and workmanship, they will stand up indefinitely under the severest treatment.

Send for price list.

Mullins Body Corporation

101 Mill St. SALEM, OHIO

quality of brick, and to reduce the losses both in the process of manufacture and in the rattler test. Formerly there was a fan on the exhaust or cold end of the dryer which was used to remove the moisture or steam that was created in the dryer. The fan was removed and a stack built in its place to take care of the moisture. This dryer slopes one foot in the 100-foot length.

* * *

BUILDING COAL UNLOADER

Following the destruction of the producer gas house of the Windsor Brick Co. of Akron, Ohio, the officers decided to build a coal bin and burn with coal. A Columbus coal conveyor and a bin under the track have just been installed by the Columbus (Ohio) Conveyor Co. It is planned to unload 50 tons of coal from a drop bottom car in 50 minutes to an hour. The storage bin will hold 350 tons of coal. When completed it will have hoppers thru which the coal will be loaded into carts or trucks.

* * *

INSTALLED AUTOMATIC MACHINE

I. L. Stiles & Son Brick Co., of North Haven, Conn., has installed a new automatic soft mud brick machine and a dryer.

* * *

MILWAUKEE COMPANY REMODELING PLANT

The South Milwaukee (Wis.) Brick Co., is making large additions to the equipment of its plant which will enable continuous operations regardless of weather conditions. E. C. Guhr and his sons, who are rebuilding the plant, are extending the city water mains to the plant after using water from the lake for some time. Electric power service will be installed to replace the steam power used until now. Heavy crushers will be put in so that heavy chunks of the frozen clay may be broken up and heated with steam enabling work to go on in winter. Considerable of this machinery is now on the way from the manufacturers. A modern dryer is nearing completion.

* * *

BUILDING 40,000,000 CAPACITY PLANT

Burnham Bros. Brick Co., of Milwaukee, Wis., has started to build one of the best brick plants in Wisconsin, it is said. Work has been started on the dryer building, and a machine building will be started next. The third building to be put up will be a power building, and the fourth, and last building will be the structure housing the kilns. All buildings are to be completed and machinery installed during the coming winter, so that everything may be ready to start the plant manufacturing at its full capacity next spring.

At its present plant Burnham Bros. Co. has about reached the end of the available clay supply for brick manufacturing. Another yard west of Milwaukee was abandoned and dismantled during the war to meet government requirements for manufacturing at that time. The single plant has been unable to meet the company's orders for brick during the past two years.

The new South Milwaukee plant will have a capacity of 40,000,000 brick per year. The total output will be the famous Milwaukee cream brick. The tract purchased by Burnham Bros., south of the city, has a very large quantity of clay which is good for the making of this class of brick. The new plant will employ about 80 men at the start, and 120 men later. It is planned to operate about nine months of the year.

Oil will be used for burning the brick, which process will be completed in from 48 to 60 hours. The kiln shed will have a large overhead crane and all brick will be handled by machinery.

More Clay from the Pit—

was needed so they looked for a more efficient and economical method of digging, and chose a One Man Excavator, which gives their plant plenty of material, besides keeping the costs down. Labor is scarce—increased production is necessary. The one man digger answers the call.

Furnished with traction wheel, or caterpillar tread, gasoline or electric power. Can be fitted with a $\frac{3}{4}$ yard clamshell bucket and used for unloading your coal. An ideal machine for stripping.

Ask about it

The Bay City Dredge Works
BAY CITY, MICHIGAN



Drawn from the Kilns

Being Brief Mention of a Host of
Interesting Happenings in the Varied
Fields of Clay Manufacturing

A. N. SPENCER SUCCEEDS L. M. MULFORD

A change has been made in the sales forces of the Central Refractories Co., of Columbus, O., which operates three brick and tile plants in the Hocking Valley field. A. N. Spencer, who was vice-president and sales manager, has resigned, being succeeded by L. M. Mulford, who has been general superintendent.

C. F. GEIGER LECTURES ON CARBORUNDUM

C. F. Geiger, ceramic engineer of the Carborundum Co., Keasbey, N. J., gave an interesting illustrated lecture on the subject of "Carborundum Refractories" at the regular monthly meeting of the Rutgers Ceramic Club, Thursday evening, November 16, in the assembly room at the Ceramics Building. Malcolm B. Catlin, president of the organization, presided.

ALABAMA TO HAVE NEW PLANT

C. E. Frost, president, Athens (Ala.) Brick Yard Co., is interested in starting a brick yard in a nearby city, and he requests us to have manufacturers of dry press machinery communicate with him.

BUYS MORE CLAY LANDS

The Alabama Clay Products Co., Bessemer, Ala., expects to extend operations, and hence is buying several thousand acres of clay land in various counties in the state. This is one of the largest clay products companies of the Birmingham district.

BIRMINGHAM PLANTS WORKING CAPACITY

The big brick plant of the Birmingham Clay Products Co. at Sibley, near Birmingham, Ala., is being operated on full time and report some good business during the past two weeks.

The Southern Sewer Pipe Works, largest manufacturer of sewer pipe in the South, continues to operate on full time and is moving a large amount of its products from the yards at this time.

The several clay pipe works at Bessemer are on capacity time, and their products are meeting with ready sale.

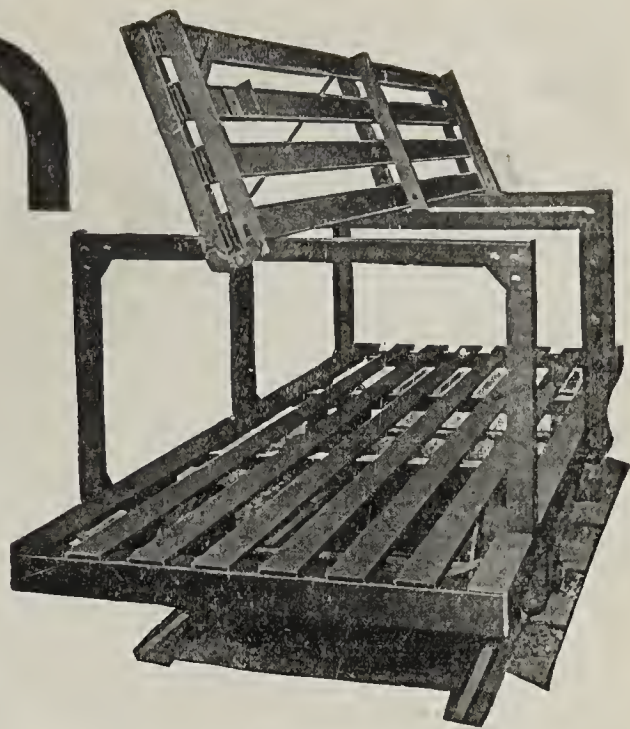
FREIGHT CARS SCARCE IN SOUTH

Owing to the shortage of freight cars the clay manufacturing business in the Birmingham district is more or less handicapped at this time. Practically all of the clay manufacturing plants are being operated on full time. Many of the plants say they are unable to supply the demands upon them for brick, sewer pipe, drain tile, hollow tile and other clay products, due to the lack of cars. There have been no changes in the prices of clay products in Birmingham for some time, although the demand has been increasing steadily since last September.

SHIPPING MANY BRICK TO MEXICO

Birmingham, Ala., clay products are going to Mexico and Central America, as well as into all of the Southern States.

The Alabama Clay Products Co., which operates a large brick plant at Bessemer, is shipping brick to Mexico in large quantities. These are both face and fire brick. This com-



Dryer, Transfer and Clay Cars,
with Flexible Bearings.
Switches, Turntables and Track.
THE CHASE FOUNDRY & MFG. CO.
COLUMBUS, OHIO

CHASE

WOULD YOU LIKE TO
MAKE BETTER
BRICK
?

USE R. & H. PRECIPITATE CARBONATE OF BARIUM TO PREVENT SCUMMING AND THEREBY PRODUCING BRICK THAT ARE RICHER AND DEEPER IN COLOR, CLEANER AND CLEARER IN APPEARANCE.

IF YOU ARE TROUBLED WITH SCUMMING, WRITE US TODAY FOR CIRCULAR.

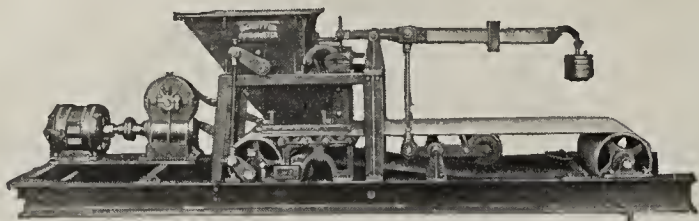
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ROESSLER & HASSLACHER
CHEMICAL CO.,

NEW YORK

CHICAGO
BOSTON
PHILADELPHIA

TRENTON
NEW ORLEANS
PITTSBURGH

KANSAS CITY
CLEVELAND
SAN FRANCISCO



LABOR SHORTAGE!

WHAT WILL IT DO TO YOUR BUSINESS?

The day of the old unskilled labor with a pick and shovel, ready at a moment's call is gone. Every job in the future will require more machines and fewer men if the work is to be done at a price commensurate with buying power.

The Poidometer will replace your pug mill man—eliminate him entirely—and mix and temper your clay more accurately and with unequalled speed.

*Our engineering staff
explain in detail.*

SCHAFFER ENGINEERING and EQUIPMENT COMPANY

2828 Smallman Street

Pittsburgh, Pa.



239



MAXIMUM HEAT FROM YOUR COAL—

Even Temperatures—and Reduced Costs,
with Marion Portable Kiln Grates.

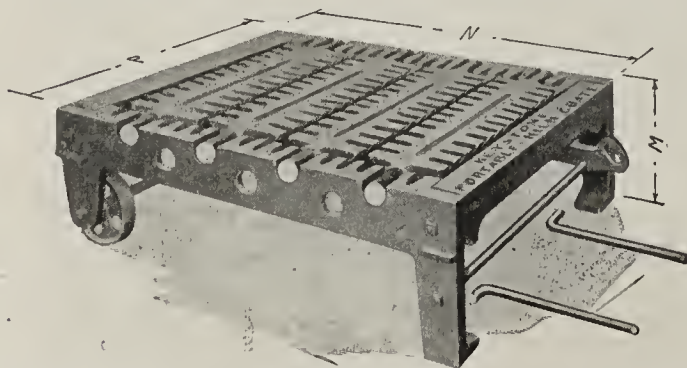
Marion Portable Grates are recommended not only because they do all this, but because they continue to pay their owners dividends long after they have repaid the first cost.

*Ask for descriptive
details.*

MARION MACHINE FOUNDRY & SUPPLY CO.

P. O. Box 395

Marion, Ind.



pany is operating on about half time, owing to the shortage of cars. They say business is good, that their brick is in demand and they would be able to operate their plant all the time if they could get the cars.

Roper-Strauss-Ferst Co., manufacturers of hollow tile and face brick, have been shipping some good orders of building tile to Central America. Moreover their business all over the Southern States is exceptionally good at this time.

The Birmingham Hollow Tile Co. is also doing a good business. This company is supplying hollow building tile for a number of buildings in Birmingham and is shipping some good orders to various sections of the South.

ESTABLISH PLANT AT LONG BEACH

Felix and Sherwood, practical brick manufacturers of Long Beach, Cal., have purchased a five-acre tract of clay near Torrance, and will immediately start work on a brick plant. They will put in several of the largest kilns in this part of the country, and have ordered a supply of the most up-to-date machinery. Besides the kilns and machinery buildings, they plan a large office building and storage buildings.

SHIPS TO JAPAN AND AUSTRALIA

Terra cotta trade on the Pacific coast has been developed wonderfully. Gladding, McBean & Co. have shipped from Vancouver to San Diego, and as far east as Salt Lake City. Mr. Davis, of the company, states that they have this summer shipped terra cotta to Australia for a 14-story building, and to Japan for four large buildings. They have shipped considerable to Honolulu, but that trade has been developing for 35 years. In his opinion, however, this extensive trade in the orient will not continue.

COMPLETE NEW SANTA MONICA PLANT

Construction of the plant of the Santa Monica (Cal.) Brick Co. is almost completed and the plant in all probability will be in operation very shortly. Common building brick of the stiff mud variety will be the product. The initial capacity will be 50,000 brick daily but this will be increased as fast as conditions warrant.

The company's president, Eric A. Douglas, altho he has had no experience in the clay industry, is a man of wide experience and knowledge. Before coming to California he was connected with one of the large steel manufacturing companies in the East.

M. J. Carlton will be general manager. He has spent his life time in the brick and clay manufacturing business and has been connected with some of the best and largest plants in the Southwest for a number of years past.

F. M. Taylor, the secretary, has been with the Main Belting Co. for the past ten years, and previous to that time was connected with the Kansas Buff Brick & Mfg. Co., Buffville, Kan.

All capital stock has been absorbed by the three men named above, none being offered to the public.



The Aetna Brick Co., of East Windsor, owned by R. O. Clark, of Berlin, Conn., has installed an automatic carrier at its plant.

STILES & REYNOLDS SUSTAIN FIRE LOSS

Damage estimated at \$25,000 was done by fire to the Stiles & Reynolds brick plant, Berlin, Conn. The fire destroyed about 375 feet of kiln shed, 265 cords of wood and burned some 20,000 pallets which were stored under the kiln shed. In addition the racks which were close to the kilns sustained considerable damage. Firemen from New Britain did valiant work and saved the new \$45,000 dryer. The plant will be able to continue operations on a curtailed basis.

MAY BUILD NEW FLORIDA PLANT

R. W. Lyle, of Palatka, Fla., is reported to be considering the establishment there in the near future of a large plant for the manufacture of brick. A site has already been obtained.

GRACEVILLE, FLA., MAY GET BRICK PLANT

Plans are being made to locate a brick plant at Graceville, Fla. A recent report from a state geologist regarding the different kinds of clay which have been found in great abundance in that section has interested local men in the possibility of erecting a clay plant.

REDUCE FREIGHT RATES ON COAL

The brick and clay plants in the Wabash valley, which is the center of bituminous coal production in Indiana, will be benefitted by a reduction of ten per cent. in the short haul intrastate coal rate which has been ordered by the Indiana Public Service Commission. The short haul rates affected are all hauls of 30 miles or less. The reduction goes into effect December 1 and will mean a saving of thousands of dollars to the plants, most of whom purchase their coal from the Western Indiana fields. The reductions ordered affect certain classes of rates that were not decreased in the general freight rate reductions of a few months ago and the changes ordered will bring these classes down to the level of the rest of the freight rates on coal. The case was pressed by the Indiana State Chamber of Commerce.

CAR SHORTAGE EASIER IN INDIANA

Reports to the Indianapolis branch offices of brick manufacturers in Indiana indicate that improvement continues to feature the transportation situation. Not only are the plants getting more cars than they were a month ago, but the car movement does not seem to be so congested. The situation is far from clear, however, and it is feared it again will be aggravated with the first really cold weather when the movement will be slowed because of natural conditions and when the domestic coal consumers are forced into the market and coal has to be moved quickly. Brick manufacturers at Indianapolis continue to buy their coal only as needed and very few have built up any appreciable reserves. Building continues better than is usual, or was expected, and demand is rather extraordinary for this season of the year.

WINS FREIGHT RATE REPARATIONS

The Chicago Sewer Pipe Co., of Brazil, Ind., has been awarded reparations by the Interstate Commerce Commission on freight rates charged for the shipment of bituminous coal from mines in the Brazil district to its plant during Federal control. The rate from a mine in the Clinton district of Indiana to Brazil was found not unreasonable.

The company asked the commission to establish reasonable rates for the future but with the termination of Federal control the jurisdiction over intrastate rates passed to the State authorities. The rate charged during Federal control and assailed in the company's complaint were found unreasonable to the extent that they exceeded, from the mine of the Howell Coal Co. near Centerpoint, 60 cents per net ton; and from the other mines in the Brazil district, 45 cents per net ton.

HOOSIER BRICK MEN WIN RATE CASE

Adjustment of interstate freight rates on brick which will give manufacturers at Crawfordsville and Attica, Ind., and other points in the Wabash River Valley competitive rates with manufacturers at Danville, Ill., in western trunk line territory and in the northwest, is provided in an order issued by the Interstate Commerce Commission, copies of which



"Digs our shale in half the time—"

writes Emmett Poston, Mgr. Poston Brick Co.

"With 5 men, the ERIE gives us plenty of shale to keep our plant running full capacity, and does a day's work of 11 men in 5 hours. And it has reduced our dynamite costs 90%. The ERIE has certainly proven a sound investment for tough shale digging."

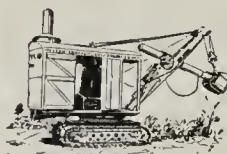
Savings like these will increase your profits—and the ERIE'S steady reliability will assure you raw material whenever needed. The ERIE is built much stronger than other shovels of its size. Upkeep expense is negligible.

We would like to send you a bulletin full of facts and photos, showing just what the ERIE can do in getting out your clay and shale. Write for Bulletin B-16.

ERIE STEAM SHOVEL CO.

Formerly Ball Engine Co., Erie, Pa., U. S. A.

Builders of ERIE Steam Shovels and Locomotive Cranes



ERIE Shovels can be had with traction wheels, car wheels, or on the ERIE lubricated caterpillar type mounting. All interchangeable on the same truck frame.

ERIE Revolving Shovels



FOERST FUEL OIL BURNERS

will burn any grade of fuel oil, producing greater and quicker heat with safety and perfect flame control. Non-clogging. Assures increased output of ware—reduction of burning time—and cut in costs.

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REPRESENTATIVES

Baumes-McDevitt Machinery Co., St. Louis, Mo.
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Complete Installations



Building a New One? Remodeling the Old?

No matter which you are doing our service can be of benefit to you.

A sincere interest in your problem, together with common sense methods and a broad experience makes this service highly profitable.

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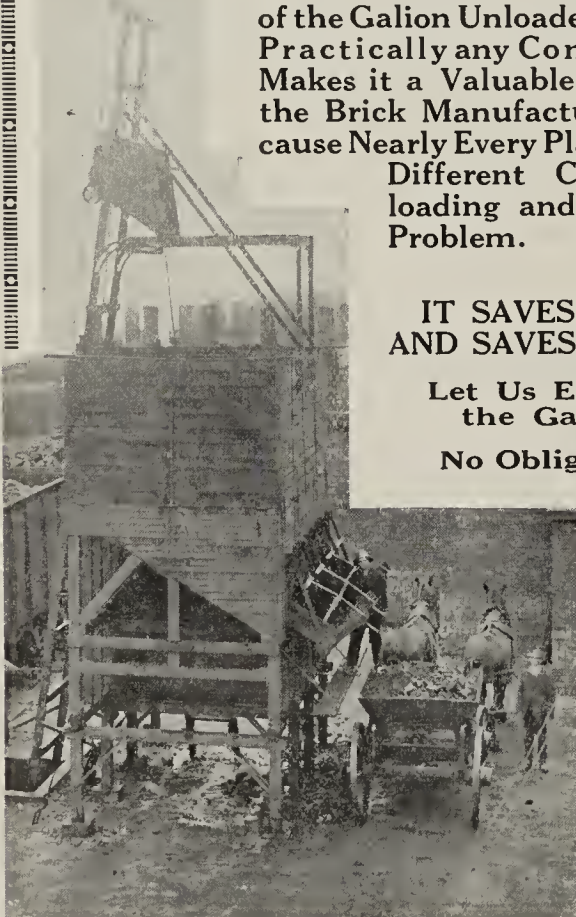
Adaptability

The Remarkable Adaptability of the Galion Unloader to meet Practically any Conditions Makes it a Valuable Asset to the Brick Manufacturer, Because Nearly Every Plant Has a Different Coal Unloading and Storing Problem.

**IT SAVES TIME
AND SAVES MONEY**

**Let Us Explain
the Galion**

No Obligation



**The
GALION**
Iron Works
& Mfg. Co.
Galion,
Ohio

have been received by the Indiana State Chamber of Commerce in Indianapolis. The order, effective at once, must be made applicable by January 23, when the new carriers' tariffs are to be published. The case was instituted by the traffic manager of the clay products division of the State Chamber. The order calling for the adjustment is regarded by the Indiana brick manufacturers as a big victory, according to George H. Mosser, managing director of the Chamber. An adjustment in intrastate freight rates on brick that will conform to the commission's order in the interstate case is asked by the State Chamber in its case now before the Indiana Public Service Commission. A decision in this case is expected by December 1. Prevailing interstate freight rates on brick from Danville, Ill., to points in the west and northwest are approximately 50 cents a ton lower than Indiana rates to the same territory, Mr. Mosser stated.

LOST LEFT ARM LAST YEAR; NOW RIGHT

George Pappas, a laborer in the plant of the North Iowa Brick Co., at Mason City, Ia., on November 16 lost his right arm when it caught in a screw conveyor. About a year ago Pappas lost his left arm in exactly the same manner in which he recently lost his right. At the hospital to which he was taken it was found necessary to amputate the arm.

ADEL RENTS HOMES TO EMPLOYEES

The Adel (Ia.) Clay Products Co. has helped to stabilize its labor supply by building company houses for the men. The houses consist of two bedrooms, a dining room, kitchen, living room, bath and furnace. The company charges \$12 per month, and gives the use of a quarter of an acre around each house. The company has 12 of these houses built of tile made at the plant, and is planning on building more.

WILL BUILD NEW PLANT IN MARYLAND

The Better Brick Co., Cumberland, Md., recently organized, has purchased property in the Allegheny Grove section, about five miles from the city, for the establishment of a new plant for the manufacture of brick, hollow tile and other burned clay products. The works will consist of a number of buildings with electric substation for power service in all departments. It is proposed to commence immediate operations. U. G. Ross is president; and J. Fletcher Clark, secretary and treasurer.

BUILDING NEW PLANT AT RUDYARD

"We are building a new brick, tile and hollow ware plant," writes James Thornton, manager of the Rudyard (Mich.) Brick & Tile Co. "We sold out the old Thornton Brothers brick plant over a year ago and now have a new plant almost completed. The four tunnel radiated heat dryer and machine building is complete. We are going to build four kilns of 90,000 to 100,000 capacity each. We use electric power and have no steam power on the plant. Our bank is 100 feet deep and the clay is very plastic and free from any lime or stone.

"Business is good and since May 1 we have made and shipped 750,000 brick and built a plant with 12 or 15 men all told."

CLIPPERT TO BUILD ANOTHER PLANT

The Clippert Brick Co. of Detroit is planning a new unit to make 50,000 brick. At present this company has one plant making 96,000 and another plant making 100,000 brick per day. The new unit will be planned on the same lines and use the same process as now employed in all of the Detroit yards, that is the soft mud process made by machine.

A. P. GREEN PLANTS BUSY

The following item was clipped from the Fulton (Mo.) Gazette:

"A force of 15 men and eight teams is getting out 16 car-loads of fire clay a week from the A. P. Green Fire Brick Co.'s pit. The force was doubled about a month ago. Practically all of the work is being done by the piece and the daily payroll approximates \$70. The fire clay is being shipped to Mexico, Mo., where it is used to tone up clay from the company's mine.

"The Green concern is operating both of its factories in Mexico, and having increased its factory production, it was obliged to increase the production of its Fulton mine. While of good quality, the Mexico clay has not the heat resisting power that the Fulton clay has, but when the Fulton clay is mixed with it, it makes an excellent quality of brick.

"The Green company owns several acres of land in Hopkinsville and has other clay ground under lease. It is understood that the company would consider purchasing additional clay land in or near Fulton if it could be had at satisfactory prices."

FIRE IN DRYER CAUSES \$10,000 DAMAGE

An overheated dryer in the A. C. M. brick plant, Butte, Montana, started a fire recently which cost that company, it is estimated, \$10,000. Before the flame could be gotten under control, the dryer section of the plant was completely destroyed and 100 feet of the continuous kiln badly damaged. The loss was covered by insurance.

FIRE DAMAGES NEBRASKA PLANT

Fire of unknown origin practically destroyed the main building of one of the plants of the Western Brick & Supply Co. at Hastings, Neb., it is stated. Brickmaking machinery was destroyed and the building injured. Damage was estimated at between \$10,000 and \$15,000.

NEW JERSEY OPEN AIR YARDS STOP WORK

The seasonal brick plants in New Jersey have practically all discontinued production, and are now concentrating operations on the burning of green brick and cleaning up for the winter season. The Hackensack yards have reserves on hand apparently sufficient for all call from the Northern New Jersey territory in the coming months. At Trenton, the mechanical dryer plants are maintaining production and accumulating reasonable reserves for early anticipated demand. The plants in the Raritan River section are having their difficulties with regard to labor, and are producing at a fairly high point. Leading brick producers in different parts of the State prophesy a maintenance of present price levels thruout the winter season, ranging from \$15 to \$16 upwards at the kiln.

TILE COMPANY FORMED IN NEW YORK CITY

The Quimby Tile Corporation, New York, has been formed with a capital of \$300,000, under state laws, to manufacture building tile and kindred burned clay products. The company is headed by W. Eveleth and W. H. Quimby. It is represented by H. R. Korey, 110 Williams Street, New York.

FORM COAL AND CLAY COMPANY

Papers have been filed with the Secretary of State incorporating the Salisbury Coal & Clay Co., of Cleveland, Ohio, with an authorized capital of \$400,000, to mine and sell clay and to make clay products. The incorporators are John F. Rumsey, B. O. Young, Thomas H. Moore, Bess Allen and P. A. Berry.

CLEVELAND ADDS PLANT TO FAMILY

Cleveland, Ohio, is to have a new brick company according to a report. The McKay Brick Co. has been incorporated with a capital of \$250,000. Its incorporators are mentioned: John E. McKay, George E. Ryder, Martha Gardner, Arthur K. Westcott and Edna L. Ryder.

The Smokeless Kiln Burner No. 8

A successful burner
on all types of kilns



28 Chamber Haigh Kiln

THE SMOKELESS OIL BURNER CO.
BUCYRUS OHIO

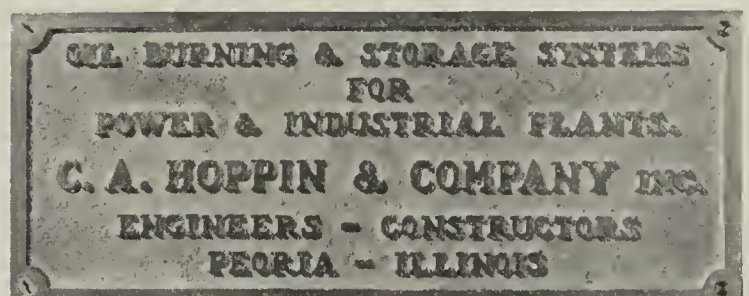
TANKS PUMPS METERS STRAINERS

Eventually— You Will Burn Oil

Clay plant operators everywhere are rapidly installing oil burning systems to burn ware, and once oil is used they will never go back to coal for the reason that, besides effecting enormous savings in labor, time and fuel, they get, thru an even and thoro distribution of heat, 100% burns of quality ware.

The Burning Department is the most important one in your plant. What better Plant Betterment move could you make than to equip your kilns for oil-burning *now*.

Let us tell you about our Engineering Service
No obligation



If Marked **BREWER** It Is Good

Clay Working Machinery

Block, Brick and Tile Machines	Feeders Desintegrators
Pug Mills	Dry Pans
Crushers	Cutters
Granulators	Hoists, etc.

Free Engineering and Clay Tests

Brewer engineering service is available without charge or obligation. Competent men will give you best advice, look over your plant and make suggestions for any needed improvements. Take advantage of this free service. Send for Brewer catalog.

H. Brewer & Company **Tecumseh, Mich.**



FRANKLIN SHUTS DOWN NO. 2 PLANT

Plant No. 2 at Taylor Station of the Franklin Brick & Tile Co., of Columbus, O., is shut down for repairs temporarily. Some new machinery is being installed as well as necessary repairs made. No. 1 plant is now being operated at full tilt making the full line of the company consist of face and common brick, drain tile and building tile. As soon as repairs are completed Plant No. 2 will be placed in operation.

NEW COMPANY TO BUILD THREE PLANTS

A new brick manufacturing concern for the Northern Ohio territory with three plants in operation in the Cleveland district within a few months, is the latest venture to be announced in that section. The new firm will be known as the Target Brick & Tile Co., and will include in its organization men well known in the brick and building supply industry of Cleveland.

W. A. Fay, formerly head of the Cuyahoga Building Supply Co., and more recently of the Ninth Garage Co., will be president of the company. Others identified with the enterprise will be C. M. Eberling, former contractor and inventor of brick and tile making machinery; R. C. Mitchell and J. M. Beville, both of whom are of the Mitchell-Beville Co., recently organized building supplies firm, and F. F. Gentsch, Cleveland attorney. It is understood that the machinery invented by Mr. Eberling will be used by the new firm.

50 PER CENT. INCREASE IN CAPITAL

Notice of increased capitalization from \$100,000 to \$150,000 was filed recently with the Secretary of State by the Dailey Products Co., Portland, Oregon.

TO ISSUE BONDS OF \$25,000

Notice was filed recently with the State Department by the Manchester Shale Brick Co., Harrisburg, Pa., that it intended to float a bond issue of \$25,000. This money is to be used to increase the capacity and efficiency of the plant.

FORM COMPANY IN PITTSBURGH

The Milliken Brick Co. of Pittsburgh, Pa., has been organized by Homer A. Milliken, Edward McCrady and John F. Baldwin. The company has been formed for the "mining, digging, buying and selling of stone, clay, shale and other minerals, the manufacture thereof into brick, tile and other shapes."

PHILADELPHIA GETS NEW COMPANY

The Charles V. Walsh Co., Philadelphia, Pa., is being organized by Charles V. Walsh, F. E. and W. C. White, all of Philadelphia, to manufacture brick and kindred burned clay products. Application for a state charter has been made. C. Wilson Roberts, 701 Franklin Building, 133 South Twelfth Street, represents the company.

INCREASES CAPITAL TO \$1,000,000

The Southern Clay Mfg. Co., Chattanooga, Tenn., a New Jersey corporation, has arranged for an increase in capital from \$300,000 to \$1,000,000 for proposed expansion. The company operates plants at Warrior, Ala., and Robbins, Tenn.

BUSINESS SWAMPS TENNESSEE PLANTS

Nashville, Tenn., is way behind with brick deliveries—at least three weeks in nearly every instance. The brick and tile manufacturing companies are increasing their output daily in order to relieve the shortage, but the late summer and good fall have caused building permits to continue climb-



Organized 1885 Incorporated 1908

FIRE INSURANCE

As Insurance Brokers, Squire Company buys insurance for its clients in the open market.

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Insurance Specialists to Clay Manufacturers

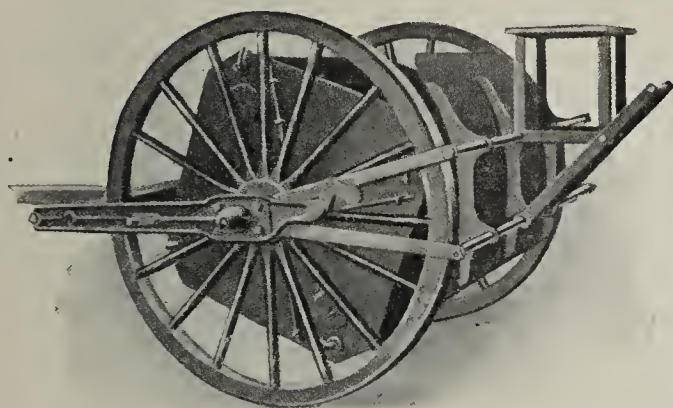
To Gather Surface Clay and Shale—

there is no cheaper or more efficient way than by using The Fernholtz Improved Clay and Shale Gatherer.

Actual tests and testimonials from brick, tile and pottery plants in nearly every state in the Union verify our claim that with the use of this improved gatherer about **ONE-HALF OF THE COST OF CLAY AND SHALE GATHERING CAN BE SAVED.**

Write for full information regarding this machine

Fernholtz Brick Machinery Company
ST. LOUIS, MO.



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If you want these qualities in a tower, equip yourself with a Caldwell Tubular.

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Caldwell
TANKS
AND
TOWERS



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The care exercised, and the standard set and maintained must necessarily produce a superior valve.

Every Jenkins is cast of the best metal and in a proportion that secures a heavier and stronger valve—one that is safe and dependable in severe as well as average service.

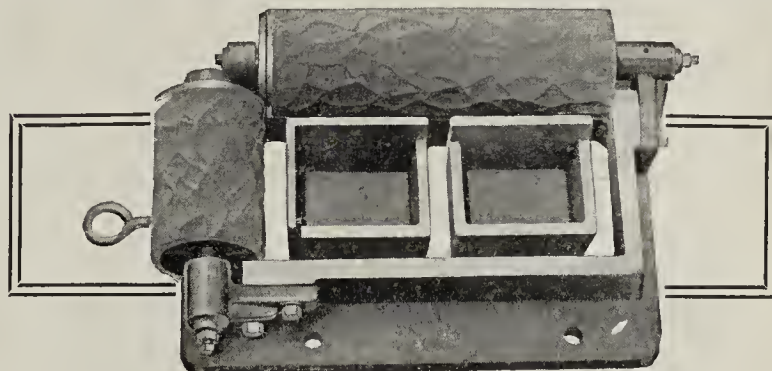
Valves for all requirements. Know the genuine by the Jenkins Diamond and signature.

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Jenkins Valves
SINCE 1864



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The Rock-faced wall tile die illustrated suggests a practical way of ornamental tile making in this pattern or other designs. We also manufacture dies for Brick, Fireproofing, Silo Block, Drain Tile, etc.

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Louisville Machine Manufacturing Co.

LOUISVILLE, OHIO

ELIMINATION OF LOSSES DUE TO KILN GRATE TROUBLES, is the result when CANTON GRATES ARE INSTALLED

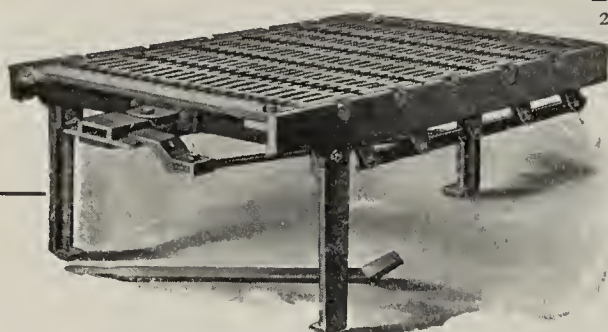
Canton Grates will save you about one-fourth on your fuel bills. They will enable your operators to attain and maintain temperatures without excess use of fuel.

It wont cost you to get complete information today and it may mean profit for you. It has to many others.

Write us



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The Canton Grate Co.

1709 Dillon Place,

CANTON, O.

ing. And to-day, it looks as tho manufacturers and dealers in clay products could look forward to a very active winter. The small towns are also swamped with orders. From McEwen, Tenn., comes the report that the Highland Brick Co., who has supplied that town's needs and shipped an average of five cars a week since March, 1922, is still far behind with orders, and is booked to March, 1923.

DRYER ELIMINATES WEATHER HAZARD

Modern drying facilities which are being installed at the plant of the South Milwaukee (Wis.) Brick Co. will make it possible for the plant to operate thruout the entire year and under any kind of weather conditions.

GIBSON COACHING RUGBY TEAM

Millard' F. Gibson, managing director of the Interlocking Tile Co., Ltd., Toronto, has been making a name for himself in the rugby field. He has been coaching the line of the victorious Varsity team of Toronto University.



Jack Miner, tile manufacturer of Kingsville, Ont., has returned from a trip thru the northwest.

WARNING TO CANADA'S WILD ANIMALS

Among the brick and clay men who are hunting in Northern Ontario are Frank R. McCannell and John McCannell, Jr., of the Milton Pressed Brick Co., Andrew Dods and Chas. A. Millar of the Ontario Sewer Pipe Co., Chas. Harrison of the Dominion Sewer Pipe Co., and Chas. H. Wallace of the Clay Products Agency.

SYDENHAM MAY MOVE PLANT

The Sydenham Brick & Tile Co., Ltd., Wallaceburg, Ont., is considering moving the plant to a new location suitably provided with railway facilities. Dryers and conveying equipment will be installed.

DON VALLEY UNABLE TO SUPPLY DEMAND

Don Valley Brick Works, Toronto, was formerly able to manufacture something for stock at this time of the year, but so far has been unable to cope with the demand, the yard being cleared completely. This company looks forward to a continued demand and states that there are evidences of activity in the construction of larger buildings.

PLAN 50% INCREASE IN CAPACITY

P. A. Galarneau estimates that the output of the Citadel Brick & Paving Block Co., Quebec, will be at least 50 per cent. in excess of the production last year. The employes have been increased ten per cent., hours from eight to ten and output increased 30 per cent. The present output is 100,000 but extensions are contemplated which will increase the capacity to 150,000 brick. The demand for terra cotta fireproofing is much increased.

DEMAND BEYOND BRICK PLANT CAPACITIES

The brick industry has had a busy time trying to keep up with orders. F. B. McFarren, manager, Interprovincial Brick Co., states that the demand is beyond the capacities of the brick plants. "The demand," he said, "has been almost entirely for housing work and school building."

He believes that there will be a continuance of construction work and more of an industrial nature, as this kind of construction has been held up for a very considerable time and many new buildings are contemplated and required. The lack of skilled mechanics indicates that there is little chance of lower wages. If anything, wages and material costs are a little higher.

Mr. McFarren is of the opinion that the situation could be relieved if builders could be induced to do more work in the winter time and start earlier in the spring.

Delegates and those attending the American Face Brick Convention at West Baden Springs, Ind., Dec. 5, 6 and 7

will find Convenient Schedules and Comfortable Service via Chicago and



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PYROMETERS

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Page 237

ROTA-VIBRA
SCREEN

Clay Working Equipment

If you need kiln bands, dryer cars, screens, or other clay working equipment, be sure to get our catalog and prices.

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Factory and General Office PITTSBURGH, PA

KILN BANDS

Machinery and Equipment

Devices and Methods, New and Old Concerning Which Information of Interest to the Clay Manufacturer Is Published

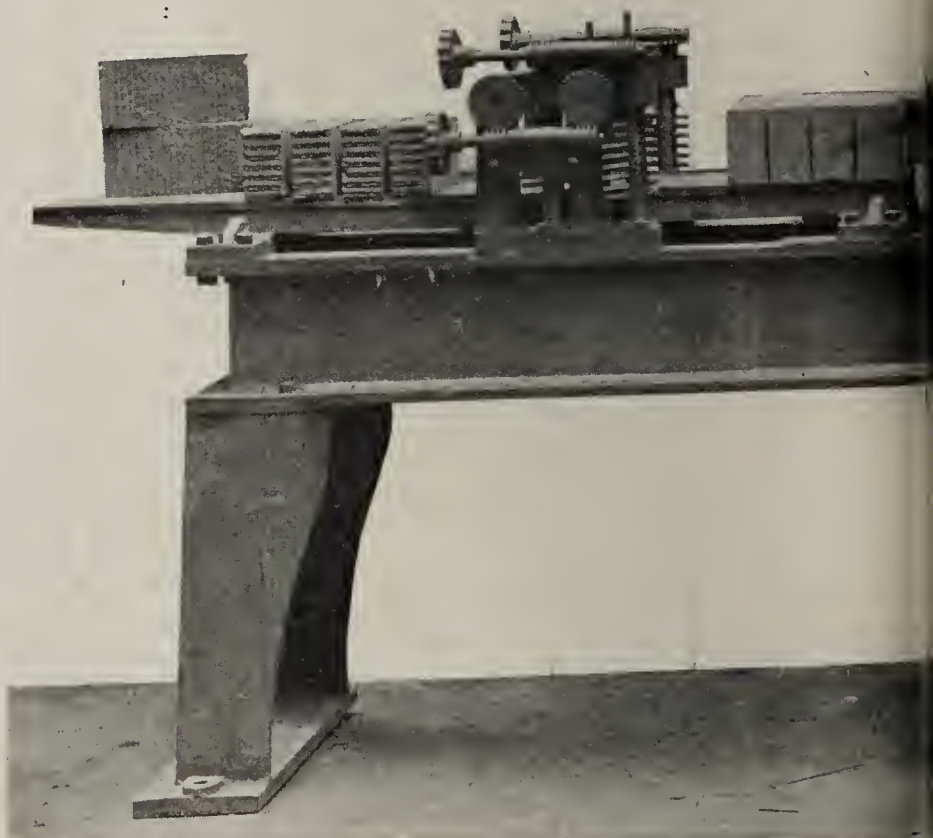
MAKING ROUGH TEXTURED DRY PRESS BRICK

A new machine to manufacture rough texture dry press brick has been perfected and placed on the market by the Oehler-Hillebrand Machine Co., St. Louis, Mo. It overcomes one of the chief objections to the dry press machine and enables the manufacturer of this type of product to make the popular rough textures without the addition of expensive machinery. The equipment is known as the "Dry-Ruff-Tex" machine and patent has been applied for.

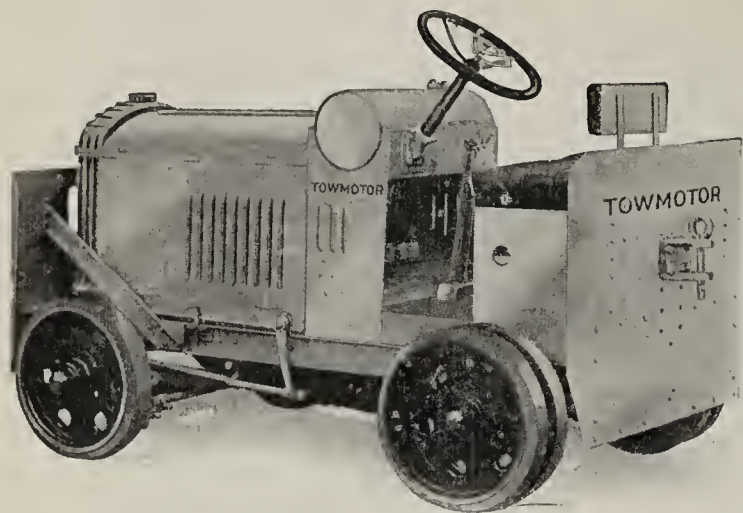
It is operated entirely independent of the dry press, from the line shafting of the plant. The manufacturer can therefore make either smooth or rough texture brick as the need for each particular type is experienced. The making of "Dry-Ruff-Tex" brick can be stopped at any time without interfering with the operation of the dry press machine. This feature is especially valuable to the small plant which has but one dry press machine in operation because either rough or smooth brick can be made without interrupting the operation of the dry press. Another of the advantages of independent operation is that just enough rough textured brick can be made for each kiln to place them in the positions desired in order to secure the streaked or flashed effect.

A glance at the illustration will show at once how the machine operates. The brick are placed on a plate and pushed thru the roughing device by a reciprocating plunger. The brick are scored by adjustable steel pegs placed at the desired intervals.

The "Dry-Ruff-Tex" machine requires an extra man to operate it but this is not a serious item when compared with the expense of running a separate machine to make rough textured brick.



This Machine Marks a New Departure in the Manufacture of Dry Press Brick. It is Kr



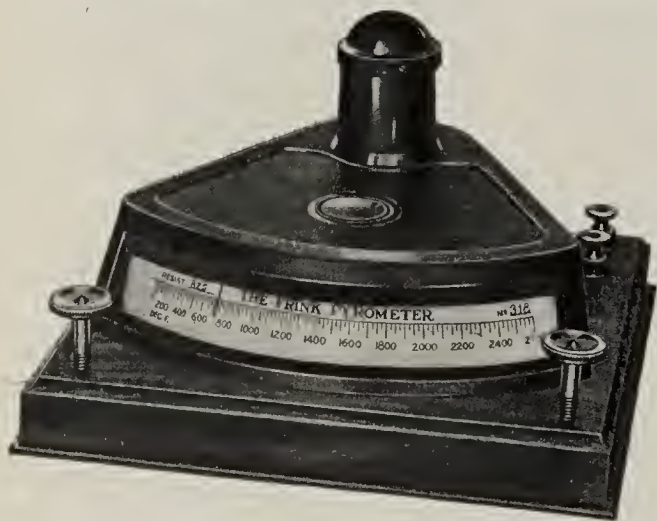
Not the lowest purchase price, but the lowest ultimate cost constitutes real cost and true economy.

That the TOWMOTOR gives the most for the lowest ultimate cost has been thoroughly demonstrated and proven by TOWMOTOR users, whose names we will be glad to supply along with descriptive bulletins and prices, upon request.

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The makers claim for the machine that it is the only one which will put the rough texture on the flat side of the brick as well as on the head for the "Ideal" wall construction which has been gaining such great popularity. This is done in one operation without added expense.

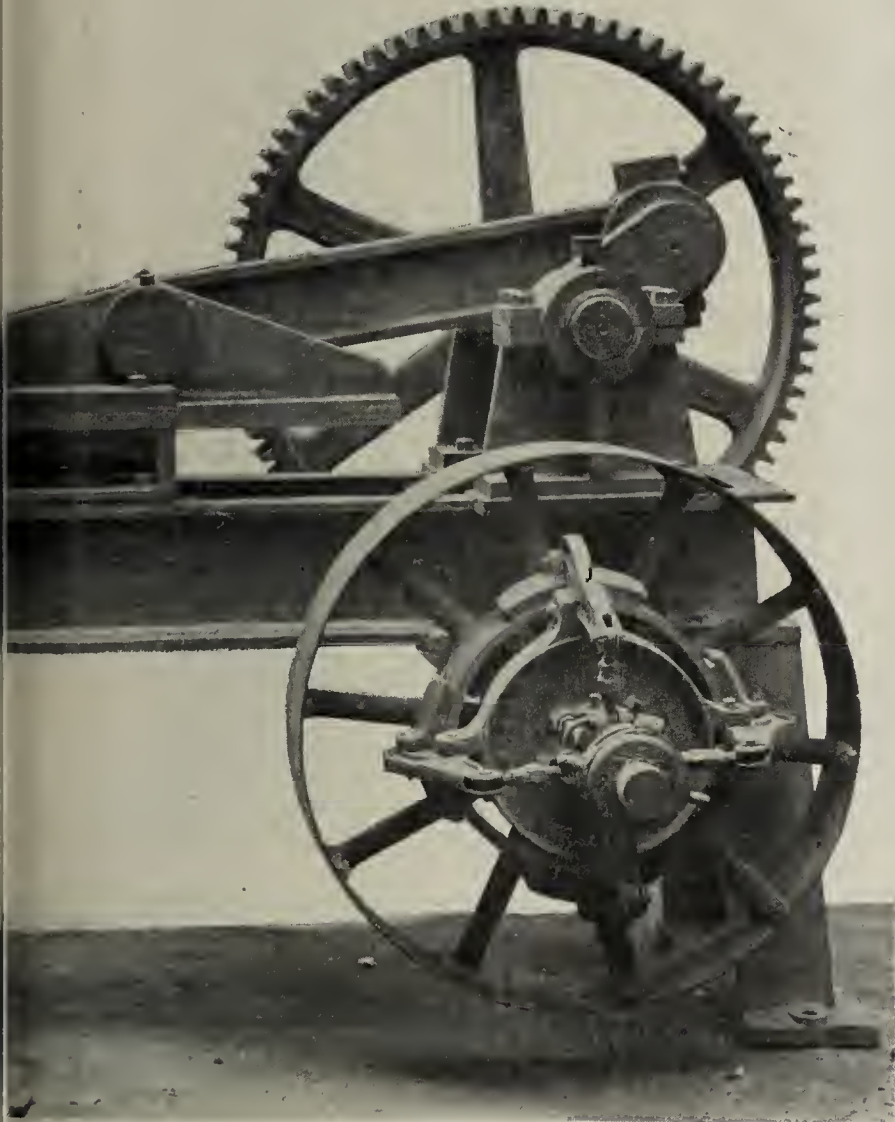
This machine may well be characterized as a step forward in the manufacture of brick since it seems to bridge the gap between the manufacture of dry press and stiff mud brick. Present day requirements of buildings, especially small bungalows and residences call for a great quantity of rough textured brick and dry press brick manufacturers have always been at a loss to know how to meet this demand, without going to the expense of remodeling their plant and installing much expensive equipment. The "Dry-Ruff-Tex" machine is the solution to the problem requiring only a comparatively small investment.

A great variety of color effects can be secured by employing the various tricks of burning, such as setting the brick flat at the top of the kiln, or immediately above the arch, getting them burned quite hard, streaked and flashed.



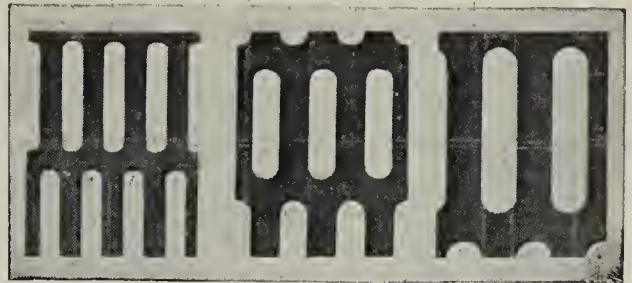
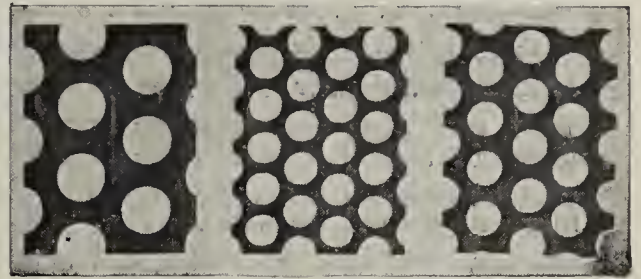
DO AWAY WITH HARD LABOR OF TOSSING

The continuing shortage of good unskilled labor and the high rates that exist because of this shortage make it imperative that every possible precaution be investigated and installed to prevent a curtailment or interference with production. One of the places around any plant making heavy clay products where the work is hard and very unskilled is that of tossing in the kiln. In fact at no other place is it so necessary to have muscle and brawn and so unnecessary to have brains. This is one place, therefore, where a mechanical contrivance can surely replace human energy. E. M. Freese &



"Dry-Ruff-Tex" Machine and Will Produce a Rough Surface on a Dry Press Brick

Perforated Steel Screens



For Screening Clay, Shale, Sand, Gravel, Stone and Cement

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Sheets furnished flat or rolled to shape for revolving screens.

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Have You a Difficult Belt Problem?

During the past thirty-seven years we have assisted many concerns with their conveying problems. A saving in conveying costs was the invariable result when our recommendations were followed.

Our belt experts may be of assistance to you. May we figure on your next conveyor?

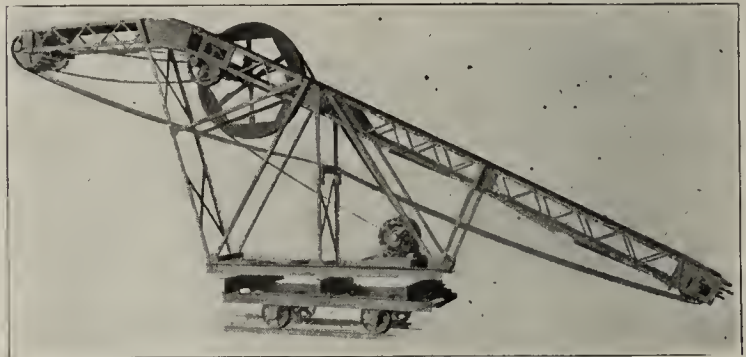
Quaker City Rubber Co.

Mfrs. Mechanical Rubber Goods—Auto Tires and Tubes
PHILA. CHICAGO PITTSBURGH NEW YORK



Co. of Galion, Ohio, have perfected the setting conveyor shown in the following illustration for this purpose.

The car of brick or other ware is placed at the lower end of the conveyor and the ware placed on the moving belt. This elevates it to the setter and places it in a position that is convenient for him and at a uniform rate. The work is easier



Setting Conveyor Which Does Away with Much of the Wheelbarrow Labor.

for both tosser and setter, they are able to set more ware and set it better, and the losses due both to fast handling and to incorrect setting are greatly reduced. As shown, the conveyor is mounted on a small dryer car and can be turned in any direction to suit the setters. The length is 24 feet and the height 9 feet.

✕ ✕ ✕

DATA ON FUSIBILITY OF COAL ASH

Data regarding the softening temperature of coal ash from several hundred coals from the different fields of the country are contained in Bulletin 209, "Fusibility of ash from coals of the United States," by W. A. Selvig, assistant analytical chemist, and A. C. Fieldner, supervising chemist, just issued by the Bureau of Mines.

Information concerning the fusibility of coal ash has become of considerable value to the consumer of coal, mainly in connection with the troublesome formation of clinker resulting from the melting of the ash constituents of the burning coal. The growing interest in such data has led the Bureau of Mines to make a general survey of the "fusing" or "softening" temperatures of the ash from coals of the United States. It is hoped that this information, when used together with the large number of coal analyses published by the bureau, will assist the consumer of coal in comparing different coals, and in selecting the coal best adapted for his purpose.

Coal ash is the incombustible residue remaining after the complete combustion of coal; it is derived from the inorganic mineral constituents of the coal. The ash-forming constituents are (1) inherent or intrinsic impurities that are present in an intimate mixture with the coal substance, and are derived either from the original material or from external sources such as sedimentation and precipitation while the coal-forming plant remains accumulated; (2) impurities, formed either during the laying down of the coal bed or subsequently, that occur in the form of partings, veins, and nodules of clay, shale, "slate," pyrite and calcite; and (3) impurities that become intimately mixed with the coal in the process of mining, such as fragments of roof and floor.

Coal ash is composed largely of compounds of silica, alumina, lime, and iron, with smaller quantities of magnesia, titanium, and alkali compounds.

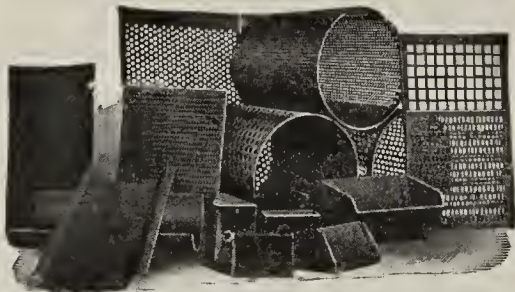
Bulletin 209 may be obtained by addressing the Bureau of Mines, Washington, D. C.

✕ ✕ ✕

TO MANUFACTURE INTERLOCKING TILE

L. E. Shaw, Avonport, N. S., and Merkleys Ltd., Ottawa, Ont., have arranged with the Interlocking Tile Co., Ltd., 32 Toronto St., Toronto, to manufacture interlocking tile.

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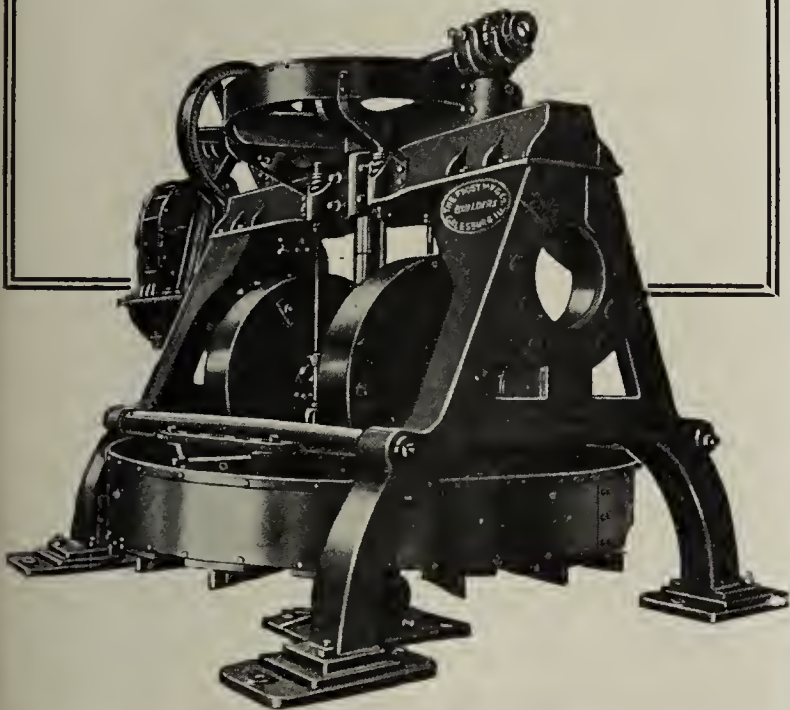
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BETTER QUALITY WARE

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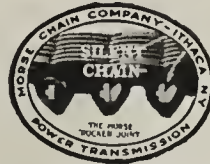
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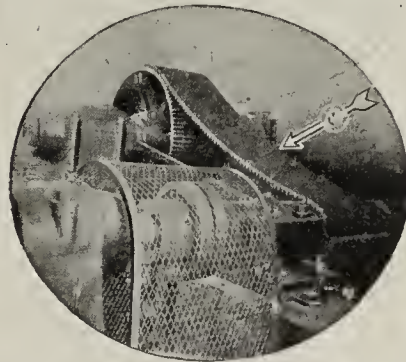
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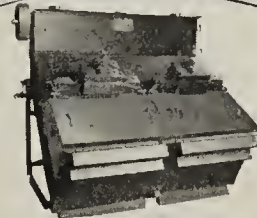
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**Especially Prepared
for Brick Making**

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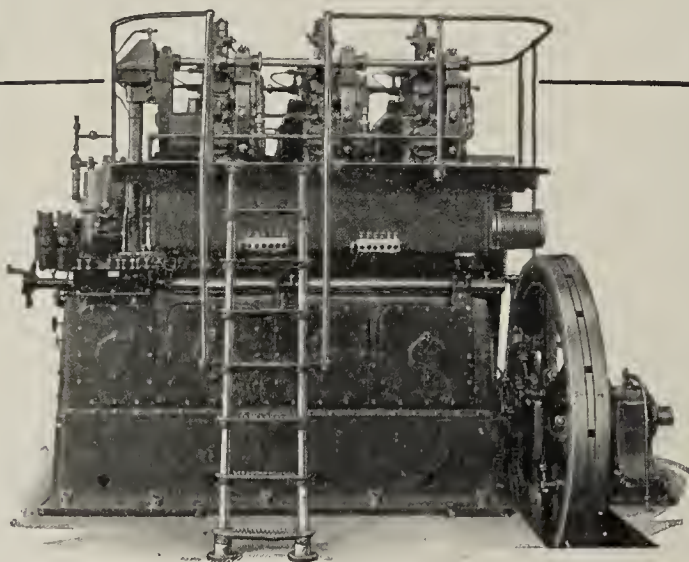
Economical—Power—Efficient—Operation—Convenient—Conservative—Complete—Easy to care for—Always ready and reliable.

This engine operates on cheap fuel oil. Fuel storage space decreased. A small amount of fuel makes a big amount of power.

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Bucyrus Ohio**

Formerly the American Clay Machy. Co.



BRICK HOUSES GAIN IN POPULARITY

Secretary King, of the Connecticut Brick Manufacturers' Association, is compiling statistics on brick dwelling house construction in Connecticut, and information he now has leads him to believe that the building work in the State during the past year will show that twice as many houses were built of brick as in the previous year.

Mr. King is preparing a new building ordinance relating to the construction of brick walls. The requirements of the construction of the ideal wall will be codified in the ordinance.

FIND NEW CLAY DEPOSITS IN FULTON

Prospecting that has been done in the Hardin neighborhood, four miles northeast of Fulton, Mo., has located what is believed to be the finest pockets of clay in Callaway County, and equal to any in the whole United States, according to reports of men who have made tests of the clay. It is said that men representing the Fulton Fire Brick Co. and the A. P. Green Fire Brick Co., of Mexico, are putting down prospect holes in the field and are securing leases as they go.

Altogether about 160 acres of land are known to contain these deposits and it is believed that when the tests have been completed they will reveal that the deposits are even larger. These tests have proven conclusively that the fire clay lies in pockets, for in some places the drills do not locate clay even at a depth of 16 feet, while on other places it is almost on the surface. In a number of places where there are ravines the outcroppings are plainly visible. The land lies a mile and a half east of the Chicago & Alton Railroad. If the deposits are found to be sufficiently large to justify extensive workings it will be an easy matter to build a railroad spur to the mines so that the clay can be loaded for shipment to the Fulton and Mexico factories.

FACE BRICK vs. STUCCO

Can face brick stack up against stucco?

This is a question many face brick interests may have been confronted with from time to time, but it seems to remain for a Cleveland (Ohio) firm to answer it.

The R. L. Queisser Co., Cleveland, has just completed a deal wherein white face brick will be used in place of stucco, tho the owner, Judge Charles Ambler, the Ambler Realty, Co., Cleveland, has been "sold" on stucco. The judge, according to R. L. Queisser, Jr., had planned to construct a residence along the old Spanish lines, of white cement stucco and red tile roof. Nothing else would do.

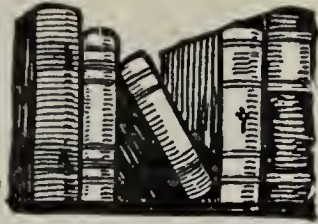
Some change in mind was manifested by the judge, however, when he was introduced to the Kittanning white rough brick known as Shade 15. He was shown how, with white mortar and marble dust, with flush joints, not only the same effect could be obtained, but a better piece of construction would result as well.

COLORADO SHORT OF BUILDING WORKERS

Figures have been exhibited showing that fourteen months ago there were 1,300 building trade workmen out of employment in the State of Colorado. These men were distributed thruout the principle cities of the State, but now the trade is begging for additional workmen. Such has been the activity in building trade and material, and everybody says that 1923 is going to be better.

BOOSTS VENTURA FOR CLAY PLANT LOCATION

James Winter, of Los Angeles, Cal., has been looking over the field at Ventura, Cal. He examined carefully the clay deposits near the city. In an interview he stated "Ventura is the best bet on the Pacific coast today in the smaller towns. With water front facilities, with cheap gas and cheap oil there is nothing that can keep this town back."



The Gateway to Better Things **BOOKS**

The Master Workman has a Master Mind—he knows perfectly his own merit, and in order to increase his knowledge, he studies the methods of other men—in the only way that he can—in books. If you would be master of your work you must read and know what others know.

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Bricklaying System.....	4.00
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These valuable clay deposits are suitable for making high-grade fire brick (safely within No. 1 Classification), building brick, and other clay products, Coal, Natural Gas, and Electric Power are available, and, in many places, coal is underlying the clay.

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"By Proper Treatment The Sedimentary Kaolins of Georgia Can Be Made Available As A Substitute For Imported Kaolin."

(Mineral Resources U. S. 1916. Page 560.)

This statement is borne out by recent tests and by the increased use of these clays by American manufacturers. Sixty per cent of the paper clay used is Georgia kaolin. The oil cloth and rubber trades are using it in increased quantities. When properly refined and processed it is suitable for floor and wall tile, electrical porcelain, sanitary ware and certain grades of crockery.

The United States Bureau of Mines in cooperation with the Central of Georgia Railway has been doing research work in the refining and treatment of these clays since July 1, 1921. Samples were collected from commercial deposits throughout the belt and embraces the different grades of clay. The preliminary results are most promising and a full report will be issued in the next few months.

An outline of the resources and the results of the laboratory and plant tests will be mailed you on application.

J. M. MALLORY
General Industrial Agent

CENTRAL OF GEORGIA RAILWAY COMPANY
SAVANNAH, GEORGIA

Among Our Advertisers

Details Concerning New Models, Changes in Personnel, News Matters, etc., That Our Advertisers Believe Will Interest Our Readers

International Clay Machinery Co., Dayton, Ohio, have been sending out some very helpful literature to clay products plants recently, describing their auger machines (Bulletin No. 30), their dryer cars (Bulletin No. 40), and pug mills (Bulletin No. 43). These booklets are well prepared and illustrated and should be of real assistance to manufacturers who are interested in this class of equipment. Did you receive your copy?

✕ ✕ ✕

NEW CATALOGS SHOW VARIETY OF INTERESTS

Link-Belt Company, 910 S. Michigan Ave., Chicago, have just completed two new illustrated catalogs covering their equipment. One is a general catalog—No. 400—which embraces their entire line, as well as that of their associate company, the H. W. Caldwell & Son Co., from Link-Belt chains and wheels and power transmission machinery, to sugar plantation and refinery machinery; in all, about 70 different types of equipment. This General Catalog is cloth bound, and contains 832 pages. A copy of it can be procured from the main office in Chicago or from their Philadelphia and Indianapolis branches.



This Is the Portable Loader Catalog

The other catalog—No. 550—illustrated here, gives complete data regarding Link-Belt Portable Loaders, including the large One-Man Power Swiveling Loader, the Portable Belt Conveyor, the standard type "A" machine for anthracite coal, and the "CS" Loader for handling sand and gravel.

✕ ✕ ✕

MAKES SHIPMENTS TO CHINA AND INDIA

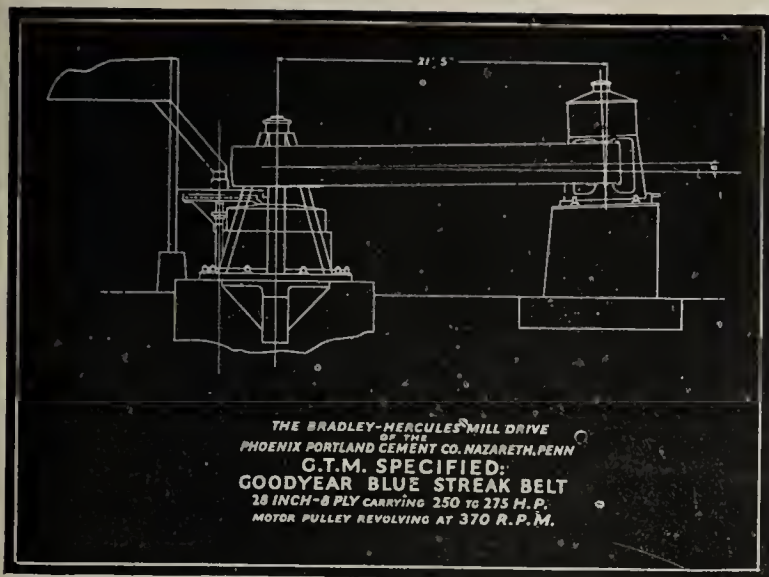
There is one manufacturer who doesn't need to be told the value of plant betterment, for if The

Hadfield-Penfield Steel Co. had not made their factory extensions keep pace with their demands, they would not have been able to handle the two unusual orders they received recently from the uttermost parts of the earth.

It seems that the fame of their clayworking machinery had reached even to the Orient, for Chinese emissaries were sent to the United States to investigate it, with the result that they ordered carloads of clayworking machinery to completely equip a modern plant in China, which will turn out quality clayware.



Fourteen Cars of "Built Right, Run Right" Equipment for India



Blueprint sketch of Goodyear-belted Bradley-Hercules Mill Drive of the Phoenix Portland Cement Company, Nazareth, Pennsylvania

The Bradley-Hercules Drive—and the G.T.M.

It was the first plant analysis made by the G.T.M.—Goodyear Technical Man—that fully convinced Mr. E. P. Haubert, Secretary and Purchasing Agent of the Phoenix Portland Cement Company, of Nazareth, Pennsylvania, that the economical way to buy belting is to buy the particular belt for the particular drive.

"To be candid," he writes, "I was somewhat skeptical at the outset. However, we gave the G.T.M. full sway, co-operating with him by furnishing all data on operating problems peculiar to our plant, and the survey he made gave us exactly the records we wanted. We consider the Goodyear Company furnished us an extremely valuable service."

Carrying out the G.T.M.'s recommendation, the Company installed a 28-inch, 8-ply Goodyear Blue Streak Belt on a Bradley-Hercules Mill Drive, August 25, 1921. That is a vertical drive, transmitting power for crushing rock of size from 1½ inches down into finer form for the pulverizing tube mill. It exerts a severe strain on any belt, for the belt must be kept under high tension, very tight, with the motor pulley revolving at 370 R. P. M.

"The best service we ever received on this particular drive from any belt whatsoever," is Mr. Haubert's summary of this Goodyear Blue Streak Belt's performance. "It stood by the job for nine months, during which we put through 192,172 tons of raw material, enough to make 604,000 barrels of cement. The best previous belt record on that drive was 70,637 barrels less."

"The Goodyear Belt was by no means worn out when we took it off. We took it off only because we felt that it might possibly break at some time when the time lost by reason of changing belts would seriously affect our production. If we had had another Goodyear Belt as a spare, we would have left it on, and I feel sure would have got quite a bit of additional service from it."

"We have a number of Goodyear Belts, both conveyor and transmission, G.T.M.-specified, in addition to this Goodyear Blue Streak Belt, and they are giving correspondingly good service."

What the G.T.M. can do for one plant, in one industry, he may be able to do for your plant. He has an expert knowledge of Mechanical Rubber Goods. He has a practical knowledge of many industrial problems. You can rely on any Goodyear Mechanical Goods he recommends—belts, hose, valves and packing—to do their work more efficiently, more economically, over a longer time. For further information about Goodyear Mechanical Rubber Goods and the Goodyear Analysis Plan, write to Akron, Ohio, or Los Angeles, California.



DELIVERY END OF HURRICANE AUTOMATIC STOVE ROOM

"Hurricane" Automatic Stove Rooms represent efficiency in drying methods.

These machines produce finished ware of best quality. The ware is carried through the machine on trays fastened to an endless conveyor chain which travels between coils of steam pipe. The drying is accomplished by the recirculation of large volumes of heated air.

Shall we send you our new folder on modern Ceramic Drying Methods, or have an engineer to call and go over your particular problem with you?



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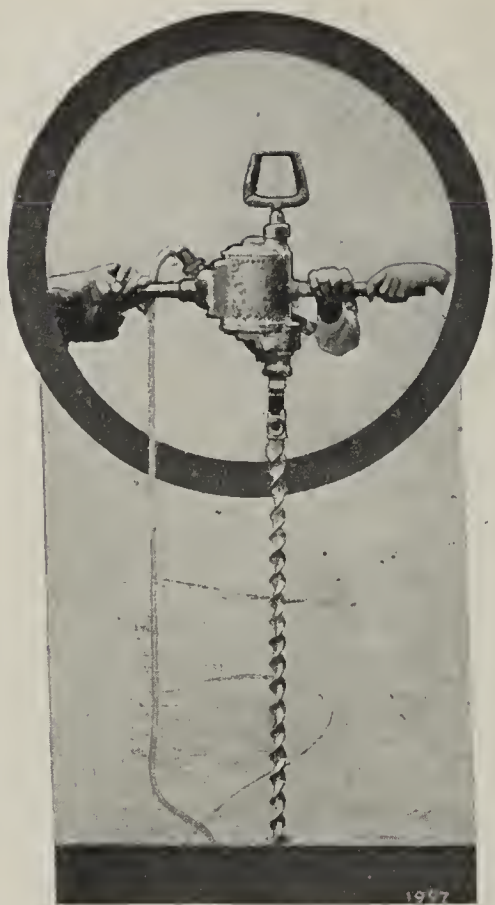
**The Philadelphia
Drying Machinery Company**

3351 Stokley St.

Philadelphia, Pa.

Western Office: 1814 Continental Bank Building, Chicago

GOODYEAR



Here's a more efficient way to drill shot-holes

IN coal, clay and shale mines Little Giant Electric Coal Drills are daily cutting shot-hole drilling costs.

Through plastic, semi-plastic and flint clay, the Little Giant Electric Coal Drill illustrated, serving the A. P. Green Fire Brick Company, Mexico, Mo., drilled fourteen four-foot shot-holes while one four-foot hole was drilled the hand-auger way.

Speed up and economize drilling and repair work in your plant. Use Little Giants. Available for operation on D. C., or single, two or three-phase A. C. Address nearest Branch for trial drill.

Chicago Pneumatic Tool Company
Chicago Pneumatic Building, 6 East 44th St., New York
Sales and Service Branches all over the World

* BIRMINGHAM	* DETROIT	* LOS ANGELES	* PHILADELPHIA	* SEATTLE
* BOSTON	* EL PASO	* MILWAUKEE	* PITTSBURGH	* ST. LOUIS
* CHICAGO	* ERIE	* MINNEAPOLIS	* RICHMOND	
* CINCINNATI	* FRANKLIN	* NEW ORLEANS	* SALT LAKE CITY	
* CLEVELAND	* HOUSTON	* NEW YORK	* SAN FRANCISCO	

R-26

BOYER PNEUMATIC HAMMERS • LITTLE GIANT PNEUMATIC AND ELECTRIC TOOLS
CHICAGO PNEUMATIC AIR COMPRESSORS • VACUUM PUMPS • PNEUMATIC HOISTS
GIANT OIL AND GAS ENGINES • ROCK DRILLS • COAL DRILLS

LITTLE
Coal



GIANT
Drills

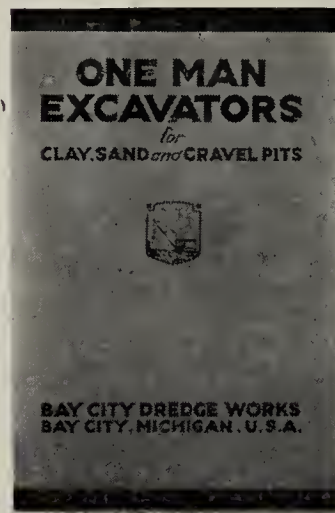


Big Shipment on Its Way to China from Hadfield-Penfield Steel Co.

The Chinese shipment was only well on its way when another big order was received for export. This time it was fourteen full cars of clayworking equipment for the most modern clay products plant in India.

From Bucyrus, Ohio, to China or India is a long distance, but from the fact that clay products manufacturers from both of these Oriental countries found a pathway to The Hadfield-Penfield Steel Co.'s door, we conclude that they are not only living up to their motto of "Build Right Run Right," but that their advertising is effective.

✻ ✻ ✻



One of These Catalogs Is
Yours for the Asking

✻ ✻ ✻

An innovation in the way of catalogs has just come to our desk from The Thew Shovel Co., Lorain, Ohio. It is a loose-leaf binder of all their catalog sections to date, and it is arranged so that additional bulletins can be added from time to time. At present it contains eight sections, and when writing for them request by number the ones you wish.

Bulletins No. 111, 112 and 113 describe their Type 0, 00, and A-1 steam shovels in the order named; Bulletins 201 and 202 cover their Type 0 and 00 electric shovels, respectively, while Bulletins No. 601 and 602 deal with their Type 0 and 00 gasoline shovels. Then there is the Lubrication Bulletin devoted exclusively to the subject of lubrication on all types of their shovels. Thruout these sections there is a generous supply of excellent illustrations of the complete equipment as well as "close-ups" of special features.

The novel cover adds a touch of distinction to the whole catalog, as it bears the inscription "This Specification Prepared Expressly for," the name of the firm to whom it is sent being indicated.

✻ ✻ ✻

William LeCompte, who for more than 25 years has been a member of the sales organization of Jenkins Bros., 80 White Street, New York City, has been appointed sales manager in charge of their New York territory. Mr. LeCompte has had wide experience in the engineering, contracting, and jobbing field, and merits the confidence which his appointment implies.

✻ ✻ ✻

Link-Belt Company, Chicago, have a new chief engineer at their Philadelphia works and Eastern operations in the person of W. W. Sayers, who for many years has represented that company in their Chicago territory in the lines related to power house machinery, coal storage, Peck carriers, crushers, et cetera, and later as head of the locomotive crane department. Mr. Sayers will make the Philadelphia office his headquarters.

Leading Clay Journal of the World.

BRICK *and* CLAY RECORD

Established 1892. Now in its thirtieth year.

Entered as Second Class Matter January 2, 1911, at the Post Office,
at Chicago, Ill., Under the Act of March 3, 1879.

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Member of Associated Business Papers, Inc.
Member of Audit Bureau of Circulations.

Subscriptions: One Year (26 Numbers), United States, \$3.00;
Foreign, \$4.00; Single Copies, 25 Cents.

Published Every Other Tuesday by
Industrial Publications, Inc., 407 S. Dearborn St., Chicago.
Telephone Harrison 9462

NEW YORK

CLEVELAND

KANSAS CITY

December 12, 1922

Vol. 61, No. 12

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You will find plant betterment ideas under the head
"Management and Superintendence," page 874. This
is a new department and will hereafter be a regular
feature of Brick and Clay Record.

SOME READERS of trade papers lose part of the value of these publications because they do not read the advertising pages as carefully as the reading pages. The value of reading the condensed sales talk of manufacturers as contained in the advertising pages is very ably brought out by a few quotations from an article by Francis D. Bowman, advertising manager, Carborundum Co., Niagara Falls, N. Y., which appeared recently in Abrasive Industry.

"A mine of information is contained in the advertising pages of the up-to-date technical paper—a mine rich in theoretical and practical data, the educational value of which cannot be overestimated. Yet many men who are not directly interested in advertising problems do not take advantage of the educational resources contained in the pages at the front and back of a periodical. Those who do not read technical-paper advertisements neglect to avail themselves of valuable information that manufacturers are supplying thru the medium of advertisements.

* * * * *

"Real advertising campaigns are planned. They are not simply a collection of flash ideas. On the other hand, they are the direct result of careful study. A real advertisement should carry to the reader authentic information in the form of sales arguments such as are advanced by an experienced salesman on a personal visit to a representative manufacturing plant.

* * * * *

"The advertising pages of any technical paper hold a wealth of information—interesting facts and figures that the practical man cannot afford to overlook. They contain many items of information, that because of the established policy of the editorial departments could not be published in the text pages. Therefore, unless the subscriber becomes a cover-to-cover reader, unless he reads the advertising pages with the same interest that he devotes to the editorial section, he will miss valuable information that some time might prove of material help in solving production problems."

Elevator and Conveyors.

Bonnot Co.
Caldwell & Son Co., H. W.
Chambers Bros. Co.
Fate-Root-Heath Co.
Freese & Co., E. M.
Gandy Belting Co.
Goodyear Tire & Rubber Co.
Hadfield-Penfield Steel Co.
International Clay Mch. Co.
Lancaster Iron Works, Inc.
Link-Belt Company.
Louisville Machine Mfg. Co.
Main Belting Co.
Manufacturers Equipment Co.
Mathews Gravity Carrier Co.
Quaker City Rubber Co.
Robinson, Frank H.
Stevenson Co.
Toronto Fdry. & Mach. Co.
Webster Mfg. Co.
Wellington Machine Co.

Engineers.

Waller Crow.
Hopkin & Co., C. A.
Manufacturers Equipment Co.
Schaffer Engineering & Equipment Co., The.

Engines and Boilers.

American Blower Co.
Bonnot Co.
Crossley Machine Co.
Freese & Co., E. M.
Frost Manufacturing Co.
Hadfield-Penfield Steel Co.
International Clay Mach. Co.
Manufacturers Equipment Co.
Robinson, Frank H.
Wellington Machine Co.

Engines (Oil).

Hadfield-Penfield Steel Co.
Wellington Machine Co.

Excavating Machinery.

Bay City Dredge Works.
Bucyrus Company.
Erie Steam Shovel Co.
Link-Belt Company.
Schofield-Burkett Cons. Co.
Thew Shovel Co.

Excavators, Ditch and Trench.

Bay City Dredge Works.
Buckeye Traction Ditcher Co.
Bucyrus Company.
Erie Steam Shovel Co.
Thew Shovel Co.

Excavators, Dragline.

Bucyrus Company.
Erie Steam Shovel Co.
Link-Belt Company.
Lomhard Iron Works and Supply Co.
Schofield-Burkett Cons. Co.
Steele & Sons, J. C.
Thew Shovel Co.

Exhausters.

American Blower Co.

Explosives.

Atlas Powder Co.

Fans.

American Blower Co.
Bonnot Co.
Freese & Co., E. M.
Hadfield-Penfield Steel Co.
Manufacturers Equipment Co.
Robinson, Frank H.

Feed Water Heaters.

Canton Grate Co.
Freese & Co., E. M.
Frost Manufacturing Co.

Filter Presses.

Bonnot Co.
Crossley Machine Co.
Hadfield-Penfield Steel Co.
International Clay Mach. Co.
Mueller Machine Co., Inc.

Flue Cleaners.

Marion Macb., Fdy. & Sup. Co.

Fireproofing.

Louisville Machine Mfg. Co.

Friction Clutches.

Caldwell Co., W. E.
Crossley Machine Co.
Dodge Sales & Eng. Co.
International Clay Mach. Co.
Link-Belt Company.
Webster Mfg. Co.

Frogs and Switches.

International Clay Mach. Co.
Robinson, Frank H. Co.
Toronto Fdry. & Mach.

Furnace Insulation.

Armstrong Cork & Insulation Co.
Celite Products Co.
Wellington Machine Co.

Gas Producers.

International Clay Mch. Co.
Manufacturers Equipment Co.

Gauges (Vacuum, Pressure and U).

Bristol Company, The.
Brown Instrument Co.

Gears.

Caldwell Co., W. E.
Caldwell & Son Co., H. W.
Crossley Machine Co.
Dodge Sales & Eng. Co.
Link-Belt Company.
Morse Chain Co.
Nuttall Co., R. D.
Webster Mfg. Co.

Gloves.

Des Moines Glove & Mfg. Co.

Granulators.

Bonnot Co.
Chambers Bros. Co.
Fate-Root-Heath Co.
Freese & Co., E. M.
Hadfield-Penfield Steel Co.
International Clay Mch. Co.
Lancaster Iron Works, Inc.
Manufacturers Equipment Co.
Steele & Sons, J. C.
Toronto Fdry. & Mach. Co.
Wellington Machine Co.

Grates and Grate Bars.

Canton Grate Co.
Crossley Machine Co.
Electric Steel Castings Co.
Frost Manufacturing Co.
Hadfield-Penfield Steel Co.
International Clay Mch. Co.
Lancaster Iron Works, Inc.
Manufacturers Equipment Co.
Marion Macb., Fdy. & S. Co.
Robinson, Frank H.
Toronto Fdry. & Mach. Co.
Wellington Machine Co.

Gravity Carriers.

Mathews Gravity Carrier Co.

Heat Insulation.

Armstrong Cork & Insulation Co.
Celite Products Co.

Heat Treating Furnaces.

Brown Instrument Co.

Hoists.

Bonnot Co.
Chambers Bros. Co.
Fate-Root-Heath Co.
Hadfield-Penfield Steel Co.
International Clay Mch. Co.
Lancaster Iron Works, Inc.
Link-Belt Company.
Louisville Machine Mfg. Co.
Manufacturers Equipment Co.
Wellington Machine Co.

Hollow Brick Machinery.

Bonnot Co.
Chambers Bros. Co.
Fate-Root-Heath Co.
Freese & Co., E. M.
Hadfield-Penfield Steel Co.
International Clay Mch. Co.
Manufacturers Equipment Co.
Robinson, Frank H.
Steele & Sons, J. C.
Stevenson Co.

Hose.

New York Belting and Packing Co.
Quaker City Rubber Co.

Hydrometers or Moisture Indicators.

Lancaster Iron Works, Inc.
Manufacturers Equipment Co.

Instruments, Scientific.

Brown Instrument Co.

Insulating Materials (Heat).

Armstrong Cork & Insulation Co.
Celite Products Co.

Kilns.

American Dresser Tunnel Kiln, Inc.
Chambers Bros. Co.
Fate-Root-Heath Co.
Hadfield-Penfield Steel Co.
International Clay Mach. Co.
Manufacturers Equipment Co.
Minter System.
Schaffer Eng. & Equip. Co.

Kiln Accessories.

Caldwell Co., Inc., W. E.
Fate-Root-Heath Co.
Hadfield-Penfield Steel Co.
International Clay Mch. Co.
Lancaster Iron Works, Inc.
Manufacturers Equipment Co.
Robinson, Frank H.
Wellington Machine Co.

Kiln Bandings.

International Clay Mach. Co.
Robinson, Frank H.

Kiln Doors and Frames.

Manufacturers Equipment Co.
Wellington Machine Co.

Kiln Expert.

Haigh, L.

Kiln Insulation.

Armstrong Cork & Insulation Co.
Celite Products Co.

Loaders (Wagon and Truck).

Link-Belt Company.
Portable Machinery Co.
Sunbury Mfg. Co.

Locomotives.

Atlas Car & Mfg. Co.
Brookville Truck & Tractor Co.
Davenport Locomotive Works.
Fate-Root-Heath Co.
Goodman Mfg. Co.
Hadfield-Penfield Steel Co.
Industrial Equipment Co.
Whitcomb Co., Geo. D.

Locomotive Cranes.

Ball Engine Co.
Bucyrus Company.
Erie Steam Shovel Co.
Link-Belt Company.

Machinery, Trans'n (Power).

Morse Chain Co.

Manganese.

Hy-Grade Manganese Co.
Lavino & Co.
National Paint and Manganese Co.
Rocessler & Hasslacher Chemical Co.

Mangles.

Philadelphia Drying Machy. Co.
Proctor & Schwartz.

Meters.

Brown Instrument Co.

Molds.

Bonnot Co.
Crossley Machine Co.
Hadfield-Penfield Steel Co.
International Clay Mach. Co.
Lancaster Iron Works, Inc.
Manufacturers Equipment Co.
Robinson, Frank H.
Wellington Machine Co.

Mold Sanders.

Hadfield-Penfield Steel Co.
International Clay Mch. Co.
Lancaster Iron Works, Inc.
Manufacturers Equipment Co.
Potts & Co., C. & G.
Wellington Machine Co.

Motor Cars.

Cole Motor Car Co.

Motors—Electric.

Burke Electric Co.
Westinghouse Electric & Mfg. Co.

Oil Burners.

Foerster and Sons, John.
Lancaster Iron Works, Inc.
Smokeless Oil Burner Co.

Oil Burning Systems.

Foerster and Sons, John.
Hopkin & Co., C. A.

Optical Pyrometers.

Brown Instrument Co.

Packings and Mechanical Rubber Goods.

New York Belting and Packing Co.
Quaker City Rubber Co.

Paints (Mineral).

Hy-Grade Manganese Co.

Pallets and Trays.

Lancaster Iron Works, Inc.
Ohio Galvanizing & Mfg. Co.
Robinson, Frank H.
Wellington Machine Co.

Pans, Dry Pans, Wet Pans, Clay or Chaser Mills Combination Tempering Pans.

Bonnot Co.
Chambers Bros. Co.
Crossley Machine Co.
Fate-Root-Heath Co.
Freese & Co., E. M.
Frost Manufacturing Co.
Hadfield-Penfield Steel Co.
International Clay Mach. Co.
Lancaster Iron Works, Inc.
Manufacturers Equipment Co.
Mueller Machine Co., Inc.
Robinson, Frank H.
Toronto Fdry. & Mach. Co.
Stevenson Company.

Perforated Sheet Metal.

Harrington & King Perforating Co.
Hendrick Mfg. Co.
Robinson, Frank H.
Wellington Machine Co.

Poidometer.

Schaffer Eng. & Equip. Co.

Portable Conveyors.

Portable Machinery Co.

Portable Track.

International Clay Mach. Co.
Manufacturers Equipment Co.
Robinson, Frank H.

Potentiometers.

Brown Instrument Co.

Potters' Machinery.

Bonnot Co.
Fate-Root-Heath Co.
International Clay Mach. Co.
Mueller Machine Co., Inc.
Wellington Machine Co.

Power Plant Equipment (Complete).

Bonnot Co.
Burke Electric Co.
Dodge Sales & Engineering Co.
Frost Manufacturing Co.
Hadfield-Penfield Steel Co.
International Clay Mach. Co.
Link-Belt Company.
Morse Chain Co.
Webster Mfg. Co.
Wellington Machine Co.
Westinghouse El. & Mfg. Co.

Power Transmission.

Caldwell Co., W. E.
Caldwell & Son, H. W.
Dodge Sales & Eng. Co.
Link-Belt Company.
Morse Chain Co.
Wellington Machine Co.

Pug Mills.

Bonnot Co.
Chambers Bros. Co.
Fate-Root-Heath Co.
Freese & Co., E. M.
Hadfield-Penfield Steel Co.
International Clay Mch. Co.
Lancaster Iron Works, Inc.
Manufacturers Equipment Co.
Mueller Machine Co., Inc.
Potts & Co., C. & G.
Robinson, Frank H.
Steele & Sons, J. C.
Stevenson Co.
Toronto Fdry. & Mach. Co.
Wellington Machine Co.

Pulleys, Cast Iron.

Caldwell Co., W. E.
Caldwell & Son Co., H. W.
Dodge Sales & Eng. Co.
International Clay Mach. Co.
Webster Mfg. Co.

Pulverizers.

Crossley Machine Co.
Manufacturers Equipment Co.
Mueller Machine Co., Inc.
Robinson, Frank H.
Stevenson Co.
Toronto Fdry. & Mach. Co.
Wellington Machine Co.
Williams Patent Crusher & Pulv. Co.

Pump, Dredging and Sand.

Bucyrus Company.

Pyrometers.

Bristol Co.
Brown Instrument Co.
Engelhard, Chas.
Frank Pyrometer Co.
Thwing Instrument Co.
Wilson Meulen Co.

Rack Cars.

Wellington Machine Co.

Railroad Ditchers.

Bucyrus Company.
Erie Steam Shovel Co.

Rails (Frogs and Switches).

International Clay Mach. Co.
Robinson, Frank H.

Rattler.

Bonnot Co.
Freese & Co., E. M.
Hadfield-Penfield Steel Co.
Manufacturers Equipment Co.
Robinson, Frank H.
Wellington Machine Co.

Recording Pressure Gages.

Bristol Company, The.
Brown Instrument Co.

Regulators.

Bristol Company, The.
Brown Instrument Co.

Represses.

Bonnot Co.
Chambers Bros. Co.
Freese & Co., E. M.
Hadfield-Penfield Steel Co.
International Clay Mach. Co.
Lancaster Iron Works, Inc.
Robinson, Frank H.
Steele & Sons, J. C.

Revolving Screens.

Galion Iron Works.
Hendrick Manufacturing Co.
International Clay Mach. Co.
Link-Belt Company.
Robinson, Frank H.

Roofing Tile Machinery.

Bonnot Co.
Fate-Root-Heath Co.
Freese & Co., E. M.
Hadfield-Penfield Steel Co.
International Clay Mach. Co.

Rope Drives.

Dodge Sales & Eng. Co.
Link-Belt Company.

Rope (Wire and Manila).

Manufacturers Equipment Co.
Robinson, Frank H.
Williamsport Wire Rope Co.

Rotary Dryers.

Hadfield-Penfield Steel Co.
Lancaster Iron Works, Inc.

Sand-Lime Brick Machinery.

Hadfield-Penfield Steel Co.
Manufacturers Equipment Co.

Sand Crushers.

Wellington Machine Co.

Sand Dryers.

Wellington Machine Co.

Sand Mills.

Frost Manufacturing Co.

Scrapers, Plows and Clay Gatherers.

Eagle Iron Works.
Fernholtz Brick Mach. Co.
Schofield-Burkett Cons. Co.
Toronto Fdry. & Mach. Co.
Wellington Machine Co.

Screens (Clay and Cement).

Bonnot Co.
Chambers Bros. Co.
Fate-Root-Heath Co.
Freese & Co., E. M.

Hadfield-Penfield Steel Co.

Harrington & King Perforating Co.
Hendrick Mfg. Co.
International Clay Mach. Co.
Lancaster Iron Works, Inc.
Link-Belt Company.
Manufacturers Equipment Co.
Mueller Machine Co., Inc.
Robinson, Frank H.
Schofield-Burkett Construction Co.
Stevenson Co.
Tyler Co., W. S.

Screens (Including Vibrating).

Robinson, Frank H.
Tyler Co., W. S.

Screen Plates.

Louisville Machine Mfg. Co.
Manufacturers Equipment Co.
Wellington Machine Co.

Screens (Rolled Slot).

Tyler Co., W. S.

Screens (Wire).

Link-Belt Company.
Manufacturers Equipment Co.
Tyler Co., W. S.

Screw Conveyors.

Caldwell & Son Co., H. W.
Link-Belt Company.
Wellington Machine Co.

Separators.

Tyler Co., W. S.

Sewer Pipe Machinery.

Bonnot Co.
Hadfield-Penfield Steel Co.
International Clay Mach. Co.
Manufacturers Equipment Co.
Stevenson Co.
Toronto Fdry. & Mach. Co.

Shafting.

Caldwell & Son Co., H. W.
Dodge Sales & Eng. Co.

Shakers (Testing Sieve).

Tyler Co., W. S.

Shale Planer.

Eagle Iron Works.

Sheaves.

Crossley Machine Co.
Link-Belt Company.

Shovels (Power).

Bay City Dredge Works.
Wellington Machine Co.
Bucyrus Company.
Erie Steam Shovel Co.
Link-Belt Company.
Marion Steam Shovel Co.
Thew Shovel Co.

Sieves (Testing).

Tyler Co., W. S.

Sifters.

Wellington Machine Co.
Link-Belt Company.
Morse Chain Co.

Soft Mud Brick Machines.

Bonnot Co.
Eastern Machinery Co.
Hadfield-Penfield Steel Co.
International Clay Mch. Co.
Lancaster Iron Works, Inc.
Potts & Co., C. & G.
Robinson, Frank H.
Wellington Machine Co.

Sprockets.

Caldwell & Son Co., H. W.
Dodge Sales & Eng. Co.
Link-Belt Company.
Morse Chain Co.
Webster Mfg. Co.

Stacks.

Frost Manufacturing Co.
Hendrick Manufacturing Co.
Lancaster Iron Works, Inc.

Steel Pallets.

Lancaster Iron Works, Inc.
Ohio Galvanizing & Mfg. Co.

Steel Plate Construction.

Hendrick Manufacturing Co.
Stiff Mud Brick Machines.

Stiff Mud Brick Machines.

Bonnot Co.
Chambers Bros. Co.
Fate-Root-Heath Co.
Freese & Co., E. M.
Hadfield-Penfield Steel Co.
International Clay Mch. Co.
Lancaster Iron Works, Inc.
Manufacturers Equipment Co.
Robinson, Frank H.
Steele & Sons, J. C.

Stoker (Automatic).

Clay Service Corporation.

Supplies.

Bonnot Co.
Chambers Bros. Co.
Freese & Co., E. M.
Hadfield-Penfield Steel Co.
International Clay Mch. Co.
Lancaster Iron Works, Inc.
Manufacturers Equipment Co.
Potts & Co., C. & G.
Robinson, Frank H.
Steele & Sons, J. C.
Stevenson Co.
Toronto Fdry. & Mach. Co.
Wellington Machine Co.

Tachometers.

Brown Instrument Co.
Tanks and Tank Towers.

Tanks and Tank Towers.

The Leading Clay Journal of the World

BRICK AND CLAY RECORD

(The Slogan Selected Will Appear Here)

(The opinion of our readers, expressing the purpose and spirit of this publication)

Technical Men Should Enlarge Viewpoint

THE GROWTH of technical and scientific knowledge in the clay products industry has been very great since the establishment of the American Ceramic Society and the installation of ceramic schools at various points thruout the country. There is no doubt that the technically trained man has carved for himself a niche where none existed before and where he has and will have practically no competition. This condition, however, has often resulted in a certain aloofness, a certain satisfaction with the location of his position, which has hampered the acceptance of his recommendations by the production department. On the other hand the production department has considered the opinions and recommendations of the technical man as too theoretical and imaginary.

The result of this variance of opinion has worked to the disadvantage of both departments and of course has lowered the profits that might have been earned if the two departments had been able to work together to mutual benefit. Each of these extreme views should be tempered and modified, so that the two can get together on a common ground to the advantage of all concerned.

The technical man must realize that the manufacture of clay products is a commercial proposition and that all theories must be reduced to a commercial basis before they are money makers. He must translate, so to speak, his technical and scientific knowledge and investigations into the every day language of the production department. It is alright for him to make all of his investigations and experiments in his own little private niche where the production man will not hamper him at all, but when he leaves that private sanctum, he must change his clothes so to speak, to talk the dialect and language of the man or men responsible for producing a sufficient quantity of high-grade ware at a cost low enough to show a profit.

On account of the increased education of the technical man, compared

to the average production man, it is casier for the former to adapt himself to the latter condition, than for the latter man to raise his view point to that of the technical man.

The large success that some technical men in the industry have attained has been due, to a very great extent, to the fact that they have been able to make this necessary adaptation in their viewpoint. This change of viewpoint does not lower the technical man at all, in fact it broadens him and enlarges his influence. This editorial is written with the hope that it will awaken in those technical men, who have not been able to put across all of their ideas, the realization that they may be able to enlarge their influence if they adapt their ideas and experiments to the viewpoint, language and understanding of the non-technical man or men who are in charge of production. Every department of the manufacture of clay products should form a field for study by the technical man of the fundamental conditions and the processes in use. Every department has a very great bearing on every other department and a knowledge of, at least, the general principles governing every phase of the industry helps the technical man in every investigation or experiment that he makes, even tho it might seem that his work is remote or separate.

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Future Coal Situation Demands Close Study

THE ARTICLE on the coal situation which appeared in the October 17 issue of Brick and Clay Record has aroused quite a little comment, both in favor of and opposed to the advice, to purchase coal for future requirements, which was offered therein.

To a certain extent the situation has grown worse since that article was written and we feel it proper and necessary to call attention to the changed conditions that have been effected in the period of almost two months since the publication of the article.

It is well known that the settlement which was made last August will run only until April 1. Representatives of the operators and of the mine workers have been engaged in two conferences within the last month to agree on some plan of action to be followed at the conference on wages and working rules, which is to be held some time after the first of the year. These two conferences to provide a plan of action have not been able to agree on that plan. It seems to us, therefore, that there is a small chance of agreement later on the more vital and fundamental points covering wages and working rules. The miners' opinions are decided on these points.

There remain only three and a half months between the present time and April 1, the date of the expiration of the agreement. That is a comparatively short space of time, and there is little chance that the price of coal will be decreased to any considerable extent in that period, especially in view of the present state of negotiations. We repeat, therefore, our advice of October 17 "that it is the opinion of Brick and Clay Record that all indications point to it being the wisest course for manufacturers to purchase every bit of coal possible and required to tide them over until late spring."

The profit obtained from being certain of operations will be far greater than the saving that may be gained by delaying purchase of coal. Possibly there will be no saving at all.

Demand will be greater in the early spring of 1923 than it was in the same period of 1922. Why try to save a small amount and run a big chance of having no stock on hand to supply a large and insistant demand for your ware? If coal production be reduced after next March the production of clay products will necessarily be curtailed and those plants that have ware in stock will have ample opportunity to dispose of it to advantage. Some consideration should be given, therefore, to pushing production as much as possible between now and April 1, to be able to take care of, at least, regular customers, even tho the supply of coal is cut off for a time.

To Face Brick Manufacturers

THE PASSAGE of a resolution by the dealers present at the A. F. B. A. Convention, asking the manufacturers to cooperate with them in the employment of a paid secretary is of great import. Brick and Clay Record is interested in the resolution insofar as it affects the widening and more intensive distribution of face brick. We believe that the resolution should have the sincere and full consideration of every manufacturer of face brick in the United States.

The advertising campaign that is being carried on by the manufacturers is having desired effects and results. It is being conducted to the end that it might create a desire on the part of the public to build with face brick and to supply the public with information about face brick and its use that was not available before. The gratifying manner in which the campaign is producing results is well known and needs no comment here. However, it is our belief that this step while it is a good one will fall short of cashing in on its full possibilities unless accompanied by another step.

Merchandising and advertising authorities are in accord in the opinion that advertising copy appearing in various publications that reach the buying public is but a part of any successful advertising campaign. Sources of distribution of a product must have equal consideration. It is a waste of time and money to create a demand without devoting corresponding and simultaneous effort in distribution channels.

By this is meant more than simply placing responsible dealers and distributors in various cities thruout the country, but that manufacturers owe it to themselves to see that their product is fully and properly sold.

The method of the cement industry is an excellent example. Not only do cement manufacturers spend vast sums of money in advertising the value of using their product but every single person thruout the country who might be regarded by the public as a dealer in building materials is urged to handle cement.

Moreover, cement manufacturers not only create a demand thru advertising and then create dealers to supply that demand, but they maintain an engineering service department to instruct dealers and consumers in the proper and best use of cement. Laboratories for making tests have been established for the benefit of the dealer or user whose privilege it is to call upon this service to determine the suitability and best specifications of cement for most any purpose. This valuable aid is immediately available to any prospective user. Thus, cement manufacturers not only create a demand, locate a source of supply for the prospective user, but also render a service to the public thru the dealer or directly.

In addition to the few hundred face brick dealers,

who are really jobbers more than they are dealers, there are close to 5,000 building supply dealers in the United States who should be selling face brick on a larger scale. It should not be impossible for each of these 5,000 dealers to sell at least 100,000 brick per year. A few houses, a public building, or a factory in two or three communities served by a dealer, will soon consume more than these 100,000 brick.

In round numbers, at least a half-billion market which could be created by the manufacturers of face brick if they were selling more brick thru the dealers, is not open today. And this would be only a start as to the possibilities in the dealer field for the sale of face brick.

An advertisement in a newspaper or magazine affects the public in three ways: it brings inquiries from some; it creates favorable impressions upon some; and it has no effect on others. There is no definite relationship between the latter class and the others. The nature of the individual product and the way it is presented will affect this relationship differently with each commodity.

There is, however, a relationship between the first two classes. There are always those persons who doubt the sincerity of an advertisement, who are apathetic or procrastinating, or for some other reason never answer an advertisement. **IT IS WRONG TO ASSUME THEN THAT ONLY THOSE WHO WRITE IN REQUESTING FURTHER INFORMATION ARE THE ONLY LIVE PROSPECTS.**

This, however, is the present tendency among face brick manufacturers. **THEY CATER TO THE RESPONSES BUT NOT TO THE RESPONSIVENESS OF THE BUYING PUBLIC.** Thus a great deal of their effort is not cashed in on but is lost. It is physically impossible for the manufacturers to cover this field themselves. Face brick should be stocked by every dealer in the country and the dealer taught how to sell it.

If the manufacturers of face brick will put forth the same amount of effort they now do to sell to the consumer direct and to compete with other manufacturers both of the same or competitive material, into establishing a large number of dealers and showing and helping them to dispose of the brick, they will achieve far superior results from their advertising campaign. It is true that the dealers will need education and that in many cases dealers have not been satisfactory. But the answer to this is that these same conditions have been confronted by manufacturers of other kinds of products and the problem after some time spent in the right direction, was solved.

The resolution passed by the Face Brick Dealers Association of America and presented to the American Face Brick Association for consideration is a step in the right direction. It should be given immediate and serious study.

"One Billion or More in 1924"

This Is the Slogan Suggested by the New A. F. B. A. President, J. M. Adams, at Convention in West Baden, Ind., December 5, 6, and 7

A PROMINENT paving brick manufacturer now producing some face brick, who attended the convention of the American Face Brick Association which convened in the West Baden Springs Hotel on December 5, 6 and 7, remarked that he was amazed at what a "live bunch" the members of the American Face Brick Association were and it was a revelation to him to see the spirit and the activity of the organization. This is the impression most any reader would gain had he attended the meeting and in a nut shell tells abstractedly the story of the convention.

This year's meeting, following as it did the best year in the history of the face brick business, brought out the remarkable attendance of close to 300 enthusiastic manufacturers, representatives and dealers. The results of the three year advertising campaign just completed was cause for much gratification; and enthusiasm ran high for a continuance of the campaign. In fact, a resolution was passed at one of the sessions advocating a three year contract to be signed up immediately by all manufacturers of face brick to contribute 25 cents for every 1,000 brick produced toward a fund for face brick promotion. This is half of the rate which was made the basis of the three year campaign just closing.

J. M. Adams was elected president for 1923. In his acceptance speech he suggested the slogan for the A. F. B. A. of "One Billion or More for 1924." His aim is to increase the membership from a production of 750,000,000 to over one billion brick annually.

Eben Rodgers Speaks

At the opening session Eben Rodgers, president of the association, said: "I want to remind you of the debt the face brick industry owes to the pioneers who had the vision and perseverance to lay the firm foundation on which has been built this great association.

"Had not some such men volunteered the product of their brain and energy, the face brick business would today be groping in darkness. It is our job to carry on and to see to it that additions are made to this structure from year to year and that the well established and useful functions now operating, are kept in perfect repair. This means capital and personal service to uphold the hands of your director of publicity and your secretary, both of whom have labored with untiring energy to land us where we are today.

"I do not mean that funds should be furnished for lavishment or sensational display but that every dollar should be furnished this organization that after proper consideration can be invested for the betterment of the industry as a whole and for the education of the American people to the proper use of face brick.

Dues Reduced by Half

"During the past year it was considered wise by a majority of your board of directors to reduce by one-half the amount of money per 1,000 to be invested in association work. It was hoped that this action would bring into the fold a larger number of producers and thereby create a wider range of interest in the work of this organization and eventually produce a revenue equal to the former amount. This move is now in the experimental stage and I feel there is some ground to believe that it will be ultimately successful. None of us are sufficient unto ourselves regardless of the size of our production be it large or small, and we owe it as a duty

to invest our proportionate share in some organization that can promote the industry as a whole to the benefit of every individual in the industry and in a manner that cannot be done single handed. I believe that almost 100 per cent. of the manufacturers of face brick will be agreeable to making an investment in this association when they fully understand what it is trying to do."

Trade Association Increasingly Useful

Continuing, Mr. Rodgers quoted from Babson the following: "There will probably be increased demand for trade association activity. In many competitive lines, individual manufacturers are finding that instead of competition being the life of trade, it is frequently its death. Individual producers are given to proceeding in the dark because they do not know what other manufacturers in their lines are doing. They have no way of knowing how the supply of their product compares with the demand for it. They cannot adjust their producing activity to the conditions of the market. As a result there are frequently periods of serious overproduction and conversely, periods in which stocks are very light, and the better informed manufacturers reap a harvest because others have sized up the situation incorrectly."

Commenting on the freight rate case which the American Face Brick Association carried on in conjunction with some other associations in the clay products field, Mr. Rodgers said, "I think if the followers of Einstein will give brick rates a careful study from before the war to the present time, they will no longer claim a universal application for his theory of relativity. However, we are now following a condition and not a theory. It is quite possible that when funds are available the association can with profit employ a high-grade traffic commissioner to study rates, and traffic conditions and suggest to groups of manufacturers ways that they can themselves follow to improve their situation.

"Business Cycle on Upswing"

"I believe that most of us will agree that we should not soon again attempt to revise the entire rate structure on our commodity at one time."

Mr. Rodgers then pointed to the increase in building operations and the large increase in production of basic commodities during the months of October and November. Referring to these conditions, he stated, "Taken all together, the statistical indicators reflect conditions decidedly in the upswing of the business cycle. While all of this sounds very encouraging does it not indicate the approach of another peak? Are not peaks dangerous places on which to stand? Is it not important to have both feet on the ground and know where the next step is going to take us? How can



J. M. Adams, Iron Clay Brick Co., Columbus, Ohio, New A. F. B. A. President.

we better be guided than by banding ourselves into a strong organization of mutual helpfulness, one that can assist us in keeping our plants modernized and operating on a scientific and economical basis. One that can keep the public mind informed as to the beauty, durability and economy of our material. One that can maintain a spirit of rivalry that will give the buyer the best possible product at the least possible price with a fair margin of profit to manufacturers."

No better picture of the general business situation which existed in the face brick industry during the past 12 months could be had than that painted by Secretary Hollowell's general report. This report tells so graphically the business conditions of the past year which are a basis and which will have an effect upon the future situation that it is published herewith in practically its entirety.

Secretary Hollowell's Report

"1922 has been a remarkable year. The face brick production will run, it is estimated, from 20 to 30 per cent. greater than that of the previous high year—1916. The curves of production and shipments show a close affinity thruout the entire year. The total stock on hand today is relatively small. The outlook for continued construction activity appears to be good. The industry, fundamentally, is in a healthy condition.

"The first half of this year was characterized by the nearest approach to ideal operating conditions which we have seen within ten years. Labor and fuel were generally plentiful and fairly reasonable in price. We also actually experienced the phenomenon of having plenty of cars with which to serve the heavy demand.

"We have often wondered what percentage of all manufacturers recognize, at the beginning of such a period, that their opportunity is at hand. It would appear that the percentage must be small for a number of plants, shut down last winter, did not start operations until late in the winter and spring. Other manifestations seemed to indicate a general lack of comprehension as to the vastness of the building activity which was to be seen this year.

About Division Meetings

"Which manufacturers were best equipped with knowledge of fundamental conditions with which they could intelligently chart their courses? It seems to us there is only one answer to this question—those manufacturers who have been regular attendants at our Division Meetings.

"As an evidence of the esteem in which these meetings are held, I wish to advise you that at the 45 Division Meetings which have been conducted within the approximately last ten months, the attendance averaged a fraction over 11. It is hoped that this average can be substantially increased in 1923. The larger the attendance, the more interesting and helpful these conferences become.

"On April 4, 1922, the Interstate Commerce Commission decided the general brick rate case, known as Docket 10733. Copies of the commission's opinion and subsequent orders have been furnished to the membership. As a whole, the commission's findings were not satisfactory to our members. It will be remembered that our part in this proceeding was inaugurated at our annual meeting, held at Chicago in February, 1919, by a resolution which was adopted without a single dissenting vote. By resolution adopted many years ago the association can not prosecute a formal complaint before the Interstate Commerce Commission unless unanimous consent of its members is obtained. It is, therefore, improbable that this association will participate in another complaint of this kind within this generation. Further proceedings relating to the measure of freight rates should be handled individually as our Traffic Committee's resignation has been accepted.

"I wish to call your attention to the noteworthy performance of our Traffic Committee, prior to resigning, in its successful representations which were responsible, at least in part, for the suspension by the commission of a paragraph eliminating the application of Kelly's Combination rule tariff from practically all the mass of new brick tariffs which were filed to become effective in October. The elimination of the application of this rule would have resulted in an increase of about 50 cents per ton on shipments to points to which there were no thru rates. The commission has laid down a common-sense and equitable solution of this problem and it is probable the railroads will accept it.

"The association has continued its participation in the important and far-reaching activities of the Joint Research Committee, composed of representatives of the Face, Paving and Common Brick and Hollow Tile Associations. As the Chairman of our Research Committee, who, incidentally is also the Chairman of the Joint Research Committee, is listed on this program for a report, further comment here is unnecessary.

"One of the finest things accomplished thru the association this year has been the revision by E. H. Scull & Co., Chicago, of the Association's Cost Finding System. The revision, in the shape of a manual, has been printed and copies will be made available to member companies who wish to receive same here. A competent Committee on Accounting and Statistics, the chairman of which will shortly report to you, has approved the revision. Mr. Scull, himself, will address you tomorrow morning.

Relations With Government

"Our established policy of cordial cooperation with Federal and State Governments has been maintained this year. The figures which we gather on stocks, production, shipments, unfilled orders, and so forth, have been furnished each month to the Department of Commerce for its Survey of Current Business. Representatives of the association attended the meeting called last spring by Secretary, Mr. Hoover, the apparent purpose of which was to encourage the gathering and dissemination of all proper statistics by trade associations. This fall, at the request of the Department of Commerce, the secretary undertook to make a survey of the sizes in which both rough and smooth brick are being made by the principal manufacturers in the industry. Reports from over 140 concerns have been received and condensed into one statement. This survey, with a brief history concerning face brick sizes, will be furnished to the Department of Commerce and will probably be used as a basis for a conference which Secretary, Mr. Hoover, expects to call. The object of the proposed conference would be the adoption of average size standards for rough and smooth face brick which would be used by all manufacturers. We took the liberty of discouraging the Department of Commerce in its suggestion that its proposed conference should also embrace the question of the 'elimination of excess varieties.' We took the position that the regulation of shades and textures by agreement would not only be impractical and undesirable, but impossible.

Building Code Work

"We are glad to advise you the preliminary copy of the Department of Commerce's proposed building code regulations with specific respect to the construction of small houses has followed closely the lines suggested by this association in regard to the use and treatment of face brick. Our principal object in these recommendations was to encourage the use of the eight-inch solid brick, the eight-inch combination of face brick and hollow tile, and the face brick veneer on studding types. It is presumed that the final report, which has not yet been made available, will amply protect the



West Baden Springs Hotel and Grounds Where the Big A. F. B. A. Doings Took Place. Almost 300 Delegates Were Present.

interests of our people and at the same time will offer a distinct advance for the protection of the public in the matter of securing beauty, strength and fire safety at smaller cost than is generally possible today.

"When operating conditions become favorable and the demand brisk, we have observed that association spirit has a tendency to flag. Good conditions seem to breed an insidious contentment with things as they are. Such complacency appears to have a contempt for, and little patience with, any considerations for protection against our industry's future needs and perils. Our association, with its wonderful record for sustained accomplishment, has combated and must continue to fight this lethargy. The association's chosen weapon is **Service**. We are today in better shape to serve our membership than ever before, from both the standpoint of trained personnel and our wide range of facilities. Within the next 90 days we anticipate the inauguration of two or three additional facilities by the Secretarial Department. These, combined with some improvements in our present regular services, will offer additional reasons for the membership of every reputable face brick plant in the country.

Market News Service Held Up

"One interesting facility, which the association last year voted to put into effect, was held up by order of our Executive Committee. I refer to the Market News Service which was discussed at length at the last annual meeting. Our general counsel is present and I would very much prefer that he explain to you the present status of this situation. There appears to be a good opportunity to go ahead with this particular service within the near future.

"One of the association's principal objectives is the conduct of the promotion campaign. Dr. G. C. Mars, director of the Service Department, is scheduled to address you this afternoon. The secretary has no jurisdiction in those functions assigned to the Service Department, and intimate comment by me on this objective would be entirely out of place. I cannot refrain from offering to you, however, my congratulations upon the wonderful increase in the use of our material which has taken place in all sections of the country. I have traveled a great deal in 1922 and have been courteously shown the building developments in many cities and towns. The large increase of residences now using face brick, compared to the same types which were erected five or six years ago of some competing material, is unmistakable. The tide of public opinion appears to have definitely swung in our favor. Dr. Mars, in his limited time, can tell you only a part of what he has done, but do not fool yourselves for one moment in figuring that this phenomenon has been caused by some strange coincidence."

Market News Service Dangerous

General Counsel Robert W. Childs explained the situation with regard to the market news service which had been

favorably acted upon last year as a part of the association's activity. Mr. Childs stated that the executive committee considered it advisable to delay the proposition for the present year and altho Judge Carpenter's decision which had just been given out before last year's meeting was favorable, the hardwood lumber case decision which was later rendered endangered the service. The linseed oil case will soon come before the Supreme Court—probably in January—and Attorney Childs was hopeful that a decision will come out of it to permit business men to gather and exchange statistics.

In connection with this subject, Mr. Childs mentioned that the American Chamber of Commerce had appointed a committee to investigate what associations do. This committee has held many meetings to take up the question of statistics on supply and demand besides other subjects and has made certain recommendations on the right of business men to exchange statistics. The Chamber of Commerce will undoubtedly back up these recommendations.

Association Well Off Financially

The financial report of the treasurer showed that the association was in an extraordinary excellent condition.

G. C. Mars, director of the Service Department, gave a report which astonished his listeners because of the results the association had obtained from its publicity. While Dr. Mars went into this subject completely, we can only briefly state here a few of the results that were outlined by him.

The advertising campaign was started just three years ago next February and altho the interval has been short the results have been unusually excellent.

Copy was placed in national publications reaching over 20 million readers at a cost of approximately 7.8 cents per person. Also five major booklets and 11 pamphlets were published during this period besides a great many plans.

Of the "Home of Beauty" booklet, the association has already distributed three editions of 75,000 each and is now on its fourth edition. In the case of the "Story of Brick" a third edition of 100,000 each is now being distributed.

The yearly advertising expenditures have been in round numbers, for 1919, \$18,000; 1920, \$233,000; 1921, \$224,000; 1922, \$204,000; or a total of nearly \$680,000 has been spent for face brick promotion.

Sells \$50,000 Advertising Literature

The point that Dr. Mars brought out that people had purchased advertising booklets from the American Face Brick Association to the sum of \$50,000 was a surprise to the delegates. They hardly realized that the public would pay that sum of money to read advertising literature on face brick.

Dr. Mars urged that salesmen and dealers be more efficiently equipped to sell brick by being more familiar with all the literature published by the association. He also

asked for examples of best work in each district from which the association might draw, for advertising purposes.

The report of the research committee by Chairman F. W. Butterworth briefly stated that the work had been stopped because of lack of funds and that a more complete report will be rendered in one of the other sessions.

F. T. Owens, chairman of the committee on accounting and statistics, mentioned briefly that there was great need for a simplified system of accounting. He pointed out that a new system worked out by the association in conjunction with an expert accountant was worthy of adoption by every plant, small or large. The system permitted proper planning of budgets.

Manufacturers Need Satisfactory Profit

Mr. Owens stated that the average department store had a turnover of from five to eight times per year with a 12 per cent. profit per turnover. The brick manufacturer on the other hand seldom turns over his capital as often as once a year. It therefore behooves every manufacturer to obtain a satisfactory profit on his product. To get back to the cost system, Mr. Owens urged that every manufacturer adopt this system which, in his case, has permitted one man to take care of all the clerical work for three factories.

On Wednesday morning Hugh M. G. Garden, of Schmidt, Garden & Martin, Chicago, gave an informal talk on "The Artistic Treatment of the Brick Wall." He treated the subject in its fundamentals and stated that a brick wall was a pattern of units with accents, rhythm and mass. He believes that the idea of the modern brick manufacturer that the varied color instead of one standard color as in former years, was a step in the right direction because, he said, there is no precedent in nature for uniformity of color. Autumn foliage, he stated, was made up of greens and browns and reds and yellows, and so forth, and since the background of brick of environment is usually one of nature, harmony should exist and brick should retain the texture of nature.

Brick thru its various bonds and joints and texture has so many possible combinations that architects will never get thru designing new effects, stated Mr. Garden.

Speaks Against Use of Mortar Colors

Mr. Garden shocked his audiences by stating that he found in only a few cases was there any justification of using colored mortar joints. He maintained that grey mortar joints are best to work with because better harmony with the brick and trim can be obtained and the introduction of a color in the mortar used simply confuses and adds to the difficulty of harmony and blend.

Raked joints give shadows and with a light colored joint appear to be blue. In the case of raked joints the effect is a shadow between the brick making a dark appearance and color does no good.

The revised cost and accounting system of the American Face Brick Association was outlined by Mr. Scull, who played an active part in the revision. He pointed out that there is an unusually large ratio of capitalization to turnover in the face brick industry and that it, therefore, was necessary to add a larger percentage of profit. Attention to obsolescence and depreciation was being neglected on many brick plants. Mr. Scull warned it was necessary that more attention be given these subjects.

By means of charts the entire new system as revised and recommended was explained. A manual has been prepared and this will be distributed to all the members so that they might adopt the system at their earliest convenience.

R. T. Stull Speaks on Research

At the consolidated division meeting which was held on Wednesday afternoon, manufacturers from all sections re-

ported on fundamental business conditions. In nearly all cases reports were favorable for the year 1922 and prospects for next year very bright.

It was at this session that R. T. Stull, supervising ceramist, U. S. Bureau of Mines, outlined briefly some of the work that had been done by the special research investigation. He stated that many brick plant burners took too long a time for water-smoking and that a big saving could be made in this phase of burning. In one plant a saving of 36 hours' time during a water-smoking period alone was made. He suggested the splitting up of the burning period into various phases; that each phase be handled separately and investigated.

Mr. Stull was followed by L. V. Estes, industrial engineer, on the efficiency possibilities in face brick plant operation. Mr. Estes asked why the manufacturer should not use the cost system to find trouble and then do something after he had located weak points. Machine efficiency should be followed and observed just as much as labor efficiency. In observing operations on some brick plants Mr. Estes reported that he had seen some places where offbearing belts were being operated too fast for the hackers while in other cases the hacking was being slowed up because of the slow speed of the belt.

The ceramic industry, stated Mr. Estes, was very slow to appreciate the value of scientific control. Analysis of conditions that exist in order to determine what should exist should be made on every clay plant.

Closing Session

At the closing session Thursday morning the convention had the opportunity to hear James W. Good, of Good, Childs, Bobb & Wescott, Chicago, who until recently was chairman of the committee on appropriations, House of Representatives. He stated that manufacturers in general are looking for a relief that will not come. Tax-burden reductions cannot be made. Minor reductions and changes may take place, but the general level of taxes will remain the same. For a period of 10 to 15 years our national expenditures cannot possibly fall below \$3,000,000,000 whatever party may be in power. Why these mammoth expenditures will be required were carefully and clearly pointed out by Mr. Good.

Startling as it may seem to many, Mr. Good predicted that ere long some form of excess profits tax law will be enacted by Congress. There are a great many corporations now not paying the amount of taxes that they should and others that are paying perhaps more than deserved. There is a necessity for providing some sort of tax which will catch those who are escaping their share and those who are profiteering. He suggested the proper handling of expenses now so that manufacturers will be prepared when the excess profits tax comes. He also stated that it is a great mistake to stop thinking of income tax after a return is made.

Must Keep Up Demand

The last paper on the program was by Charles C. Parlin, manager, Division of Commercial Research, Curtis Publishing Co., Philadelphia. Mr. Parlin pointed to the great demand for face brick that was prevalent during the past year. Plant capacities have been increased to take care of it. Thus there will be presented a very great problem when the demand recedes. This great producing capacity will have to find an outlet. A demand for face brick must be maintained.

The clay industry like other old industries crystallized its selling methods before advertising was developed. This has been a handicap to the clay products industry.

Lumber was an old industry and did not feel it necessary to advertise, but concrete, metal lath, prepared roofing came in as new industries with a selling problem. These indus-

tries came into existence after advertising became established and their sales problem was met thru advertising. Lumber production went down tremendously while the consumption of cement, metal lath, roofing, and so forth, made rapid increases. The result was that lumber industries soon found it necessary to advertise or face continued reduction in consumption.

The worst situation you can face is when your product is very well known. A building being constructed of brick or steel is common. There is no thrill in watching its construction. But concrete building is new and gathers hundreds of curious onlookers. The attention is attracted to concrete because it is thought of as a new and modern way of construction. To offset this reception and reaction to concrete it is necessary that competitive products must tell their story in an interesting way.

Mr. Parlin had a number of interesting charts showing the enormous increase in the incomes earned by persons in this country indicating an ability to buy better grades of homes. In the last 15 years the growth of registration in our colleges has equalled the number of persons attending high school 15 years ago. This means increased earning power of people; increased power of appreciation of class materials and increased number of people who can read printed matter and get a message from it.

Mr. Parlin warned that one of the hardest things was to live down a success, and urged that face brick manufacturers not stop advertising because they had been successful but to keep going. He pointed out that it was necessary not

only to sell the individual production of each member but to sell the entire face brick production in America so that manufacturers who are not members of the association will not cut in on the markets.

Mr. Parlin so fittingly demonstrated the value and necessity of continued advertising that a resolution was immediately passed to submit contracts to every member, based on a three year period calling for 25 cents per 1,000 brick produced, for an appropriation for promotion purposes.

Officers Elected

Officials for the forthcoming year were elected as follows: President, J. M. Adams, Iron Clay Brick Co., Columbus, Ohio; first vice-president, J. W. Bogue, 3-V. Brick & Tile Co., Neodesha, Kansas; second vice-president, A. B. Adams, Key-James Brick Co., Chattanooga, Tenn.

The board of directors for the three year period were elected: B. W. Ballou, Kansas Buff Brick and Manufacturing Co., Kansas City, Mo.; Eben Rodgers, Alton (Ill.) Brick Co.; T. P. Cuthbert, Fallston Fire Clay Co., Pittsburgh, Pa.; F. W. Butterworth, Western Brick Co., Danville, Ill.; B. Mifflin Hood, Legg Brick Co., Atlanta, Ga. Thomas B. Dreher, Auburn (Pa.) Shale Brick Co., was appointed to fill the vacancy caused by the death of Mr. H. R. Mears, of Bloomsburg (Pa.) Brick Co.

Mr. Adams in accepting the presidency of the association advocated full support of the association's program and urged every member to be active in increasing the membership production to over a billion brick and suggested the slogan for the association as "One Billion or More in 1924."

"Among Those Present" at the A. F. B. A. Convention

Geo. P. Anderson, Brick & Supplies Corp.
J. M. Adams, Ironclay Brick Co.
George E. Allen, Tupelo Face Brick Co.
F. Aulenbacher, Cleve. (Ohio) B. S. & B. Co.
Harvey C. Adams, Danville (Ill.) Brick Co.
Andrew A. Ayers, Hay Walker Brick Co.
C. H. Andrews, New Castle, Pa.
A. Allen, Richards Brick Co.
C. P. Austin, Binghamton (N. Y.) Brick Co.
E. E. Acomb, The Pursell Co.
A. B. Adams, Key-James Brick Co.
John Andres, Standard Brick Mfg. Co.
J. M. Beville, Cleveland, O.
Geo. A. Bilque, Gloninger & Co.
C. W. Brownie, Brick & Supplies Corp.
H. N. Barr, Michigan Face Brick Co.
J. T. Baker, Sunderland Bros. Co.
C. D. Boyd, Secy., Ricketson, Mineral Paint Works.
A. J. Bohn, Southern Brick & Tile Co. and Keeling Cassidy Brick Co.
Harry L. Baldwin, Am. Face Brick Assn.
H. R. Biegle, Beaver Clay Mfg. Co.
L. J. Bolster, L. J. Bolster Co.
F. W. Butterworth, Western Brick Co.
J. L. Buckley, Tri-City Brick Co.
P. B. Belden, Belden Brick Co.
Geo. A. Bass, Hydraulic-Press Brick Co.
J. M. Bogue, V. V. V. Brick & Tile Co.
F. G. Banker, Brooklyn Brick Co.
W. E. Bullis, V. V. V. Brick & Tile Co.
C. J. Condon, Michigan Face Brick Co.
Edw. T. Conley, Bradford (Pa.) Brick & Tile Co.
J. A. Cassidy, Keeling Cassidy Brick Co.
R. R. Colburn, Reliance Brick Co.
J. Glenn Crane, Standard Brick Co.
Edw. C. Carlyle, The Carlyle-Labold Co.
Walton N. Cable, Walton N. Cable Co.
G. C. Cowman, Claycraft Mining & Brick Co.
Richard B. Cooper, Fiske & Co., Inc.
Matt M. Clay, Clay-Ingels Bldrs. Supply Co.
L. R. Cutler, Entwistle & Co.
Robt W. Childs, General Counsel.
T. P. Cuthbert, Fallston Fire Clay Co.
G. E. Carlyle, Carlyle-Labold Co.
F. R. Carter, Peoria (Ill.) Brick & Tile Co.
Amos M. Carpenter, The Face Brick Dealers' Association.
D. Frank Crouch, B. Mifflin Hood Brick Co.
C. T. DeHaas, Marquette, Mich.
A. H. Darrow, Wisconsin Face & Fire Brick Co.
A. Pollock Dempsher, American Enameled Brick & Tile Co.
Chas. G. Deckman, Medal Paving Brick Co.
R. A. Dandukand, Clay Products Co.
J. A. Dolben, Dolben & Co.
Guy Dickinson, Arkansas Brick & Tile Co.
W. W. Dickinson Jr., Arkansas Brick & Tile Co.
A. E. Davis, Western Brick Co.
W. J. Dagenhart, Jewettville Clay Products Co.
A. H. Downes, Cook & Brown Lime Co.
Frederick B. Stevens, R. C. H. Duclos.
John H. Donohue Jr., Corning - Donohue Brick Co.

G. P. Dean, New York City.
S. M. Duty, Medal Paving Brick Co.
W. F. DeMuth, Canton Brick & Tile Mfg. Co.
A. J. Earl, Cleveland, Ohio.
L. V. Estes, L. V. Estes, Inc.
M. McC. Everhard, Everhard Co.
C. B. Elwood, Watts-Worehouse Co.
O. J. Ellinger, H. D. Conkey Co.
J. E. Frider, Acme Brick Co.
R. L. Findlay, Hay Walker Brick Co.
Wm. H. Francis, Coffeyville Vitrified B. & T. Co.
T. B. Freeman, Hay Walker Brick Co.
E. C. Gaertner, The Clay Products Co.
Ed. Flanders, Marietta (Ohio) Shale Brick Co.
N. N. Fry, Fisher Lime & Cement Co.
Marcus H. Green, Wm. E. Whaley.
Herbert F. Beist, Cleveland, Ohio.
C. J. Gagnon, J. A. Gagnon.
E. F. Grand, The E. F. Grand Brick Co.
C. A. Gardner, New York City.
J. N. Gerard, Nebraska Material Co.
Geo. R. Ganery, R. B. Tyler Co.
Hugh M. G. Garden, Schmidt, Garden & Martin Architects.
F. R. Goar, W. G. Bush.
M. E. Gammon, Building Supply News.
Brix Garraux, B. Mifflin Hood Brick Co.
LeRoy W. Gaddis, The Gaddis - Harrison Brick Co.
John Harms, Lookout Paint Mfg. Co.
E. Olney Herman, Tiffany Enameled Brick Co.
S. J. Hewson, Hydraulic-Press Brick Co.
H. S. Hamilton, McArthur Brick Co.
E. M. Hepburn, Detroit, Mich.
Herbert L. Hesler, Crawfordsville, Ind.
W. L. Hanley, Jr., Bradford (Pa.) Br. & Tile Co.
Paul Hartung, Belden Brick Co.
W. H. Hoagland, Claycraft Mining & Brick Co.
R. F. Howell, Wertz Coal & Bld. Supply Co.
E. C. Hervey, Hydraulic-Press Brick Co.
J. L. Hughes, Utica, N. Y.
Harry N. Hansen, Toledo (Ohio) Plaster & Supply Co.
J. C. Herron, Crawfordsville (Ind.) Shale Brick Co.
P. C. Hodges, Claycraft Mining & Brick Co.
R. D. T. Hollowell, Secy., A. F. B. A.
Chas. F. Herrmann, U. S. Brick Co.
T. L. Herbert, W. G. Bush & Co.
R. B. Howard, Meacham Wright Brick Co.
O. A. Harker, Jr., Dixie Brick & Tile Co.
B. Mifflin Hood, B. Mifflin Hood Brick Co.
Theodore Hillsmeier, Huntingburg Pressed Brick Co.
W. G. Holly, B. Mifflin Hood Brick Co.
Clinton Jones, Fullonham (Tex.) Brick Co.
John C. Johnson, Standard Salt & Cement Co.
George T. Krum, Lansing, Mich.
H. A. Jung, N. C. P. I. A.
J. G. Johannigman, The Pursell Co.
F. H. Johnson, Summittville (Ohio) Face Brick Co.

G. L. Kraatz, Kraatz Brick Co.
Emil M. Kraatz, Kraatz Brick Co.
C. J. Renard, Green Bay, Wis.
H. F. Kemper, Kemper Material Co.
John W. Kaup, Fiske & Co., Inc.
Victor W. Krause, Nebraska Material Co.
P. R. Ketcham, O. W. Ketcham.
O. W. Ketcham, Philadelphia, Pa.
H. H. Klocke, Continental Clay Co.
V. H. Kriegshaber, V. H. Kriegshaber & Son.
Geo. A. Krueger, Krueger Co.
Leo A. Krueger, Cleveland (Ohio) Clay Products Co.
W. M. Lanaber, Clinton, N. Y.
M. P. Louwerse, S. A. Morman & Co.
J. T. Leonard, Belt Line Brick Co.
R. N. LaBar, LaBar, Parsons & Pierce.
J. R. Lucktenberg, Burton Townsend Co.
Walter Lange, New York City.
G. C. Landgrebe, Huntingburg (Ind.) Pressed Brick Co.
Martin Linger, Hamilton, Ohio.
G. B. Luckett, Crawfordsville (Ind.) Shale Brick Co.
A. E. Livingston, Louisville (Ky.) Builders' Supply Co.
Chas. H. Locher, Jr., Glasgow (Va.) Clay Products Co.
W. A. Laverty, Brazil (Ind.) Clay Co.
J. F. Mattes, Decatur (Ill.) Brick Mfg. Co.
Walter S. Moellering, Wm. Moellering's Sons.
E. H. Moellering, Wm. Moellering's Sons.
C. F. Mattes, Decatur (Ill.) Brick Mfg. Co.
John J. McCoy, Milwaukee, Wis.
H. T. Miles, Spbar Brick Co.
L. V. Madsen, Twin City Brick Co.
C. F. Miller, Darlington (Pa.) Brick & Mining Co.
J. E. Morrissey, Continental Clay Products Co.
N. H. Mannakee, Hy-Grade Manganese Co.
E. P. McFadden, Toronto Fire Clay Co.
Chas. W. Massie, Hy-Grade Manganese Co.
D. Mackenzie, Cox & Co.
G. J. Marsh, Marsh-Murdock Co.
L. H. Mumford, Central Refractories Co.
Russell Mitchell, Hay Walker Brick Co.
G. C. Mars, A. F. B. A.
D. R. Mahoney, Ballou Brick Co.
C. B. McNees, Kittanning (Pa.) Clay Mfg. Co.
Geo. C. Murphy, L. J. Bolster Co.
R. L. Merriagh, Alton (Ill.) Brick Co.
J. J. Millin, Kane Brick & Tile Co.
H. J. Mordt, J. W. Rollinson Co.
Jacob Mandel, O. W. Ketcham.
B. K. McClosky, O. W. Ketcham.
F. V. Manson, New York City.
W. B. Mills, Acme Brick Co. & Hood Brick Co.
P. J. Mamer, The Mamer Co.
J. G. Mamer, The Mamer Co.
W. R. McKown, Brooklyn Brick Co.
W. B. Mills, Acme Brick Co.
Samuel E. Matter, Standard Salt & Cement Co.
Thos. C. Moulding, Thos. Moulding Brick Co.

Bill Mathews, Columbus Brick & Terra Cotta Co.
 J. W. Moulding, Thomas Moulding Brick Co.
 S. D. Mullins, B. Mifflin Hood Brick Co.
 A. W. McDowell, B. Mifflin Hood Brick Co.
 J. B. Nicholson, Toronto Fire Clay Co.
 D. G. Oviatt, R. L. Owelssen Co.
 W. Dowell Oldham, Oldham Brick & Tile Co.
 Francis T. Owens, Fiske & Co., Inc.
 Leo M. Parsons, R. C. Tway Coal Co.
 C. V. Plerson, Duluth Builders Supply Co.
 R. F. Peterson, Duluth Builders Supply Co.
 Wm. J. Pugh, Jr., Builders Material Co.
 Robert E. Parry, Parry Brothers.
 C. O. Power, Louisville Cement Co.
 E. F. Plumb, Streater (Ill.) Brick Co.
 Walter Purcell, Purcell Co.
 H. H. Price, A. F. B. A.
 George Puddington, Wadsworth Brick & Tile Co.
 C. E. Parsons, Peoples Coal & Cement Co.
 R. L. Queisser, R. L. Queisser Co.
 James C. Robertson, Bay State Builders' Supply Co.
 M. E. Remelin, Secy., Cincinnati Brick Club.
 George W. Repp, A. F. B. A.
 L. B. Rainey, Fallston Fire Clay Co.
 I. Alredale Ryttenberg, Sumter (S. C.) Brick Works.
 B. H. Richards, Jr., Richards Brick Co.
 J. D. Ramsay, Kane Brick & Tile Co.
 J. W. Rollinson, Detroit, Mich.
 W. N. Richard, U. S. Brick Co.
 Arthur W. Riggs, The Brick Sales Co.
 Eben Rodgers, Alton (Ill.) Brick Co.
 C. J. Renard, F. Hurlbut Co.
 H. H. Rosenberg, Brick and Clay Record.
 H. C. Rothert, Huntingburg (Ind.) Pressed Brick Co.

R. L. Rutzler, B. Mifflin Hood Brick Co.
 Guy J. Supple, Western Brick Co.
 Thos. H. Simms, Brick Selling Co.
 L. L. Stephenson, L. L. Stephenson
 C. B. Samuels, Lookout Paint Mfg. Co.
 B. H. Shriverm, Poston Paving Brick Co.
 Jno. M. Stoner, Cincinnati Builders Supply Co.
 Gus F. Smith, Cleveland (Ohio) Clay Products Co.
 H. A. Smythe, Wisconsin Brick Co.
 Fred Solmes, Colonial Brick Co.
 Chas. C. Stratton, Alumina Shale Brick Co.
 H. M. Spaulding, Boston, Mass.
 F. L. Steinhoff, Brick & Clay Record.
 H. E. Speakes, The Speakes Co.
 S. F. Sharpless, Jr., The Speakes Co.
 A. V. Smith, Streater (Ill.) Brick Co.
 J. P. Sullivan, Wisconsin Lime & Cement Co.
 Wm. E. Sankey, Sankey Bros.
 H. B. Schaaf, Hocking Valley Fire Clay Co.
 H. D. Stewart, Binghamton Brick Co.
 C. A. Stamm, Builders' Material Co.
 P. D. Shannon, Beaver Clay Co.
 Geo. B. Sawyer, Marsh Murdock Co.
 E. A. Stewart, Stark Brick Co.
 B. J. Spics, Cleveland Builders' Supply Co.
 D. C. Shorey, D. C. Shorey Brick Co.
 Joseph Sotherland, Toledo Plaster & Supply Co.
 R. T. Stull, Bureau of Mines.
 Frederic B. Stevens, Detroit, Mich.
 Douglas F. Stevens, Acme Brick Co.
 C. V. Spickelmeier, Spickelmeier Tile & Supply Co.
 Fred D. Stilz, Irvington Coal & Mine Co.
 Ralph Spencer, Dresden Brick Co.
 W. J. Snyder, Brazil (Ind.) Clay Co.
 Ralph Simpkins, Hydraulic-Press Brick Co.

W. G. Van Etten, H. D. Conkey & Co.
 Wm. P. Varney, Hydraulic-Press Brick Co.
 Ralph Van Roo, Wisconsin Face & Fire Brick Co.
 E. M. Thomas, Hay Walker Brick Co.
 Robert Taylor, Jr., American Enamel Brick Co.
 John P. Turpen, Moores-Coney Co.
 I. H. Tampkins, Alfred Coal & Material Co.
 Jas. R. Thomas, The Standard Brick Co.
 J. Crow Taylor, The Clay Worker.
 Ralph W. Tuller, Reliance Brick Co.
 R. K. Thorwer, B. Mifflin Hood Brick Co.
 W. R. Willard, Kittanning Clay Products Co.
 Lawrence G. Wilde, Cincinnati Builders' Supply Co.
 S. W. Walts, River Coal & Supply Co.
 Homer Wiseman, West Virginia Brick Co.
 E. Withcrow, Carlyle-Labold Co.
 Charles W. Williams, Michigan Building Material Co.
 H. F. White, Hocking Valley Products Co.
 J. M. Weinple, American Enameled Brick & Tile Co.
 Burt T. Wheeler, Burt T. Wheeler Brick Co.
 W. P. West, Franklin Brick & Tile Co.
 Walter P. Wood, Best Brick Co.
 Donnelly Weaver, The Brick Sales Co.
 Ray J. Wertz, Wertz Coal & Builders' Supply Co.
 W. P. Whitney, Springfield (Ill.) Paving Brick Co.
 F. Graham Williams, F. Graham Williams Brick Co.
 R. L. Witters, The Toledo Plaster & Supply Co.
 C. V. Zimmerman, Detroit, Mich.
 Edwin C. Zorn, Brick and Clay Record.
 J. H. Zinn, Wm. E. Dee Co.

GROWTH OF BRICK INDUSTRY APPARENT

"There are unmistakable indications that the common brick industry of America is taking on a new lease of life. These indications have been apparent for several months past and are so consistent in their trend that it is safe today to say that this ancient and honorable business is assuming a business-like mien and a prosperity that it has not known," says the November Digest of the Common Brick Manufacturers' Association.

The digest goes on to warn common brick manufacturers that the need is here for greater efficiency, increased sales efforts and increased capacity as the market will permit. The prediction is made that construction is swinging back to the use of common brick and manufacturers are urged to be ready to meet all demands put upon them.

94 common brick companies reporting show a total of 232,733,000 brick on hand against orders on the books for 232,694,000. Only 16 plants are reported closed down.

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COAL STRIKE IN APRIL ALMOST CERTAIN

According to all present indications next spring will see the country in the throes of another coal strike involving some half-million coal miners. Coal operators and union miners in a meeting in Chicago December 6 failed absolutely to get together over plans for holding the next wage conference. The proposal of the operators called for district settlements and arbitration and this was flatly refused by the miners. The meeting adjourned without having reached any decision and will reconvene in Chicago January 3.

It is not likely that the operators will have any other plan to lay before the miners and unless the miners change their attitude, of which there is small hope, a strike is inevitable.

It is possible that federal authorities may intervene thru action of Congress if facts brought out by the United States coal fact finding commission warrant such action.

A clause in the operators proposal which aroused strenuous opposition on the part of the miners, was that providing for a flexible wage scale which would permit, when competitive circumstances demanded, an adjustment of the wage scales that would allow of free competition between all the districts. This clause was thrown out.

Arbitration was considered impossible by the miners because, as John L. Lewis, president of the United Mine Workers pointed out, it prejudged disputes and made all con-

troversial issues a football for persons unfamiliar with the trials involved.

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FEBRUARY 5-10 TO BE NATIONAL BRICK WEEK

The fifth annual convention of the Common Brick Manufacturers' Association of America, to be held in Cleveland, Ohio, the week of February 5, will mark National Brick Week. In connection with the week plans are being made now for a complete and aggressive campaign of advertising and education that will not only point the way to more business for the common brick manufacturer, but which will also apprise the buying public of the value of the material, and thus actually create more business. It will be the aim of the association's executives back of this part of the convention and the National Brick Week program to inform architects, engineers and contractors as well of the value and economy of common brick. The movement should have the support of every brick manufacturer in the country.

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FIRST PAVING BRICK TO MUSEUM

A humble paving brick which had done its faithful duty in the street of Charleston, W. Va., was recently given a place in the state museum at Charleston. The street of which the brick was part was laid 52 years ago and it is claimed was the first brick pavement ever built. Not more than an inch was worn off the surface of the brick.

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Conventions in Prospect

January 24, 25 and 26—Canadian National Clay Products Association and Western Ontario Clayworkers' Association, Hotel Connaught, Hamilton, Ont.

January—Kentucky Clay Products Association, Louisville, Ky.

February 5, 6 and 7—Common Brick Manufacturers' Association, Hotel Winton, Cleveland, Ohio.

February 8, 9 and 10—National Brick Manufacturers' Association, Hotel Winton, Cleveland, Ohio.

February 12, 13, 14, 15, 16 and 17—American Ceramic Society, William Penn Hotel, Pittsburgh, Pa.

Dealers Organize on Sound Basis

Sessions at West Baden Convention Bring Over 150 Face Brick Dealers Together—Ask Manufacturers Help to Engage Permanent Secretary

OF THE 300 MEN who were present at the American Face Brick Association Convention at West Baden, Ind., about 150 were distributors. These distributors gathered together at three separate sessions. These sessions were all informal and resolved themselves into organization meetings.

The Face Brick Dealers' Association of America has weathered severe storms and has suffered considerable damage. By the time of the meeting at West Baden only a nucleus of an organization was left. The dealers thus spent the entire time in their sessions to organize on a basis that would insure them of no more floundering but a safe journey and on a right course to reach their port. By permitting every man present to air his views on the proper basis for dealer organization a composite view was formed and it is now felt that an association has finally been organized on a proper basis—a basis that will permit the association to grow and add strength with each year.

Set Dues According to Sales

Dealers prepared a resolution authorizing dues to be paid by its members according to the number of brick sold each year. For 1923, the dues will be based on 1922 sales as follows: those who sold under 500,000 brick, \$20; between 500,000 and 3,000,000, \$50; between 3,000,000 and 5,000,000, \$100; over 5,000,000, \$200. These rates for dues were received very favorably and will guarantee sufficient funds to put the organization on a sound business basis.

Burt T. Wheeler, president of the dealer association, spoke very forcibly and frankly on the present status of the dealer. He stated that there must be new interest somewhere—a point of common interest between the dealers and manufacturers. The dealers meeting alone will not ac-

Dealer Must Use A. F. B. A. Advertising

The dealer must help the manufacturer cash in on the advertising campaign conducted on behalf of face brick. Much of the effort of the manufacturers is being wasted because of lack of dealer interest and dealer help. Mr. Wheeler showed how the dealer association had been organized in various bases in past years, but none was satisfactory, nor insured a permanent organization. It therefore behooved the dealers to give much consideration to the proper planning of a new organization. He then read a resolution wherein it was suggested that the American Face Brick Association maintain within its organization an assistant secretary who shall spend his entire time on dealer distribution, this secretary to be guided by a committee composed of three manufacturers and three dealers. The resolution embodying this message was presented to the manufacturers at their final executive session and its disposition has not yet been made public.

Brick men, on their way to West Baden via Cincinnati were royally entertained by the Cincinnati Brick Club from the time they arrived, Monday morning, until they reached West Baden the following morning. Showrooms of the nearby dealers were visited during the day. A luncheon was attended by many at noon and in the evening there was a dinner, given by the Cincinnati Brick Club, in the Hotel Gibson. The members of the club formed an orchestra for the occasion and their entertainment was greatly enjoyed. Following the supper, a theatre party was made up. Four special cars took the hundred members to West Baden.

The officers for the dealer association were elected as follows: President, Burt T. Wheeler, Burt T. Wheeler Brick Co., Chicago; vice-president, R. N. La Bar, La Bar, Parsons & Pierce, Seranton, Pa.; secretary-treasurer is to be appointed by the board of directors. There will be in fact two secretaries, one a permanent or managing secretary and the other, an official secretary-treasurer.

The board of directors were elected as follows: J. A. Dolben, J. A. Dolben & Co., Boston, Mass.; Jno. M. Stoner, Cincinnati (Ohio) Clay Products Co.; R. L. Findlay, Hay-Walker Brick Co., New York City; John Baker, Sunderland Bros., Omaha, Nebr.; and Ralph Speneer, Dresden Brick Co., Detroit, Mich.

* * *

BUILDING HOUSES IN ONE DAY

Here is something new for the brick manufacturer to worry about. A recent bulletin of the Chicago Building Construction Employers' Association says:

"In Philadelphia they say they put up the rows of little 15 foot, two story homes over night, the party walls being so thin that one good spike driven between the brick joints answers for picture hooks in two houses. Now a Major Totten down in Washington proposes to go them one better and put them up before the night comes. He has patented a scheme to build houses of concrete in forms, doors, windows and all openings complete in four operations. The foundation in, the four sides are molded on the ground and after they have set, are raised up and placed in position, a few cleats, some painting up, and they are almost ready for occupancy. They are building a few in Washington now and the cost as compared with brick, it is reported, shows a wide difference in favor of the new system."

Resolution Asks Manufacturers to Appoint Secretary

Whereas,—We, the members of the Face Brick Dealers' Association, recognize and freely admit the lack and very great need of better cooperation between the manufacturers and dealers, and

Whereas,—We feel that conditions can be greatly improved in our industry by the joint consideration of our general problem,

Therefore be it resolved, That we, the members of the Face Brick Dealers' Association of America, hereby offer the suggestion to the American Face Brick Association that they establish in their organization an assistant secretary to give his undivided attention to the question of dealer distribution to serve under the direction and authority of a joint board of management composed of three directors from the American Face Brick Association and three directors from the Face Brick Dealers' Association of America.

comply much for either themselves or the manufacturers whom they represent. If face brick is to be marketed 100 per cent., more dealers are essential. The present basis of the dealer is not deserving of cooperation with the manufacturer. It is, therefore, vitally necessary that the dealers "call a spade a spade" and get down to real business.

Dry Pressing Refractory Shapes

Renewed Interest is Being Manifested in Making Refractories by the Dry Press Process—Dry Press Shapes a New Development

L. W. Flood

Engineer, Chisholm, Boyd & White Co., Chicago, Ill.

BOTH the manufacturers and users of large refractory shapes will be benefited greatly thru improvements that have recently been perfected for increasing the quality and lowering the cost of this class of ware.

Fire brick, like other clay products, are made by all three processes—soft mud, stiff mud and dry press. The dry press process, however, was started later than the others, and some manufacturers are not yet familiar with the distinct advantages shown by brick made by this process. Development and enlargement of this method of producing large refractory shapes, therefore, calls for an explanation of these special requirements, at least of those that are of general application.

The stiff mud process requires quite a large percentage of plastic material. The same is true of the soft mud process, except in the case of silica, magnesite and chrome. The materials used in the manufacture of special shapes from these latter materials, however, even tho made by hand, really have about the same moisture content as the materials used in the dry press process. The pressure of the machine is replaced by hand ramming, and we can in a measure say that the dry press process is in use and has been in use for years for this purpose. The soft mud process could not be used for large shapes unless some supports were placed around the sides of the shape, when taken from the mold.

Tremendous Pressure Necessary

The successful manufacture of magnesite and chrome brick, which are highly non-plastic, and of fire clay brick with large percentages of grog and non-plastic flint clays, is evidence that it is both possible and practical to manufacture refractory shapes of fire clay by the dry press method. A

high percentage of plasticity is not essential for dry press ware, since the pressure at times equals five to six thousand pounds per square inch. The plasticity of the raw material, however, should be developed to the best practical degree in order to produce the best brick possible with the least expense, trouble and loss.

In some cases high plasticity is objectionable, as it may cause the ware to split. The addition of grog, sand or calcined material assists in overcoming this trouble. Plasticity is developed by weathering the raw material, by storing the freshly ground clay in a moist condition, or by steaming and moistening the clay before it goes to the press. A common rule-of-thumb test to determine whether the raw material is in proper condition for use in the dry press is to squeeze some of the material in the hand. If it balls up and stays in shape, it is in proper condition. If, however, this hand pressure squeezes water out of the clay, it surely has too high a percentage of moisture which must be reduced before being used. In general, the higher the percentage of moisture, without any excess, the better the brick. This usually runs about seven per cent. Too dry a mixture makes the ware hard to handle without damage and produces poor corners and edges.

Watch Moisture Content Carefully

Raw fire clay is usually crushed and then fed to a dry pan for grinding. Some mechanical feeder should be used for feeding the clay in order to obtain the best results from the pan, and in order to assist in producing the best brick possible. If the clay is dry, a very small stream of water may be fed into the dry pan, on the theory that if the full percentage of moisture is contained at this point, the grinding

In the transition of the clay products industry from a handmade to a machine-made industry, the manufacture of practically every class of product has been improved and perfected so that at least a large amount of the labor used in shaping the ware has been eliminated. One of the divisions, however, that has been improved very little is that of the manufacture of large refractory shapes. For many years standard nine-inch fire brick have been made by all three processes—soft mud, stiff mud, and dry press—and each type is suited to special uses. Until the present, large refractory shapes have been made almost entirely by the hand-made stiff mud process. Practical experiments, however, have been made and are being made toward molding large shapes by the dry press method.

Of course a change of this kind brings up new problems that must be overcome and counteracted, as the questions of clay feed, amount and duration of pressure, and other

points are different than in making standard nine-inch brick. The accompanying article calls attention to a few of the problems met in the manufacture of refractory ware of all sizes by the dry press process. Many of the advantages of this improved method are almost self-evident. The labor cost is greatly reduced. The cost of heat for drying is smaller because of the smaller amount of water used. The investment in dryer buildings and equipment is less. Likewise, the investment in stock in process of manufacture is smaller because of the quicker turnover in drying.

In addition to the reduced cost of manufacturing, large refractory shapes by this process should possess all of the advantages of dry press fire brick of standard size, two of which are better ability to withstand changes in temperature, and more uniform size. The latter feature is important in making the joints as thin as possible, thereby eliminating one of the main sources of deterioration of fire brick.

operation will have some of the beneficial effects of a wet pan and develop the full plasticity of the clay. In some cases too much moisture at this point may curtail production, so that this must be watched very closely.

The clay which goes thru the pan should be fed to some type of screen. This is a very important operation in dry press manufacture, as too large a proportion of coarse sizes reduces the plasticity of the mass, even tho the clay when properly ground may be classed as highly plastic. It also renders the production of good brick more difficult and expensive. The percentage of finely ground clay must be large enough to fill the voids between the coarse particles. It is similar in a way to the use of concrete. Too large a percentage of coarse stone or aggregate, and too small a percentage of sand and cement to fill these voids produces weak concrete. The grinding of any fire clay varies, and some experiments have been made of the effect of this variation on the strength of the brick. We do not know, however, of any brick being made by dry press where there is a definite percentage of different sizes of grains. Outside of the machine, we believe this is the most important point to watch in the manufacture of large refractory shapes by dry press. More carefulness and consideration must be used than is now employed in making standard sized fire brick. A shape 24x12x4 will be ten times as large as a standard sized brick, and it is evident that the homogeneity of the material is most important. If one edge or corner or even the center contains more coarse material than another point, the pressure cannot be equal thruout the piece. The fine clay cannot bind the coarse material, and the resultant ware will have some parts that are weaker or stronger than other parts. The results obtained in use will therefore be disappointing.

Mechanical Mixer Necessary

It is essential that a mechanical mixer be used just above the press to keep the fine and the coarse particles properly mixed. The clay from this mixer should have a perpendicular chute into the press. It will readily be seen that if the clay is delivered to the press thru a chute which is built at an angle, the coarser particles will have a tendency to run ahead of the fine particles and destroy the uniform mixture.

We believe that success in the manufacture of large refractory shapes by dry press will require a constant, uniform and definite proportion of the various sizes of the ground clay grains. The proportion of the various sizes of grains will vary for each clay and must be determined by the nature of the clay itself, its plasticity and working qualities. Success in dry press brick manufacture requires that the pressure exerted will be correct for the material in the mold. That is why many operators change their pressure frequently. The better the condition in which we have the clay the fewer the pressure changes that are required and the better the brick will be.

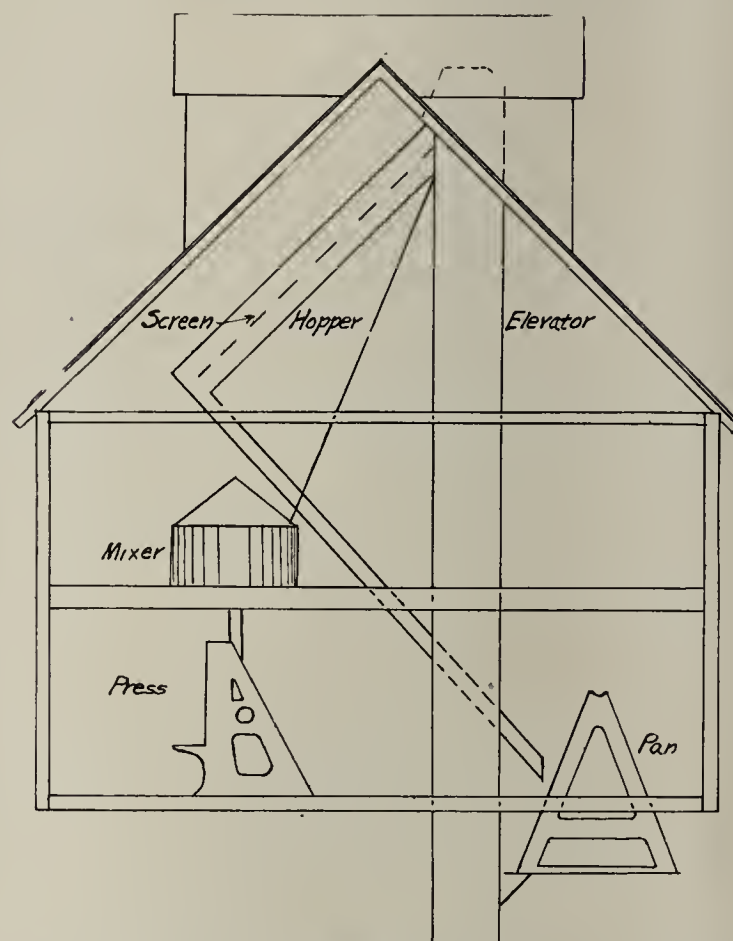
Material Must Be Uniform

It is very important that the material for the manufacture of large refractory shapes be uniform, and that the material for such shapes have the same uniformity and homogeneity as the material used in the manufacture of the regular nine-inch series of brick. In the case of large shapes, this uniformity and homogeneity means a constant percentage of moisture content, and constant percentages of the several sizes of ground clay granules.

In general it is advisable to use as high a pressure as possible without producing pressure checks, since high pressure makes stronger brick. The method of exerting pressure in the dry press when making shapes is the same as in the manufacture of standard fire or building brick.

Standard sized fire brick are sometimes set direct from the machine to the kiln, and at other plants are dried in a

tunnel dryer before being set. Good arguments are advanced in favor of each procedure, but it is evident that large shapes must be dried thoroly—just as thoroly as hand-made shapes—before being set. The shapes made by the dry press process will not have as much strength in the dried state as the same shapes made by hand. Any moisture on the inside will create steam, and either cause cracks and



Section Thru Model Dry Press Plant Showing Most Important Features.

fissures in the ware when escaping or produce a spongy structure with little strength or resistance. This is the same trouble experienced with brick made by the other processes.

Advantages of the Dry Press

Some of the many advantages to be gained by making large shapes by dry press are:

1. The cost of manufacture will be reduced.
2. The cost of installing expensive dryers or dry floors will be lessened.
3. The resultant ware will be more uniform and exact in size, which is very important in construction of some furnaces.
4. The refractoriness of some clays will be increased, as experiments have shown that ware when made by the dry press process withstood a heat at least two cones higher than the same shape made by another process.
5. The uniform size of ware will reduce the fire clay used in the joints. This will increase the life of the ware, partly because the clay in the joints is seldom as high grade as the clay in the large shapes—this reduces the quality of the entire structure—and partly because of the reduced joint area, which usually is the point of greatest wear.

Do Not Spall Easily

6. Large refractory shapes, made by the dry press process are able to withstand sudden changes of temperature in many cases much better than the same shapes produced by any other process, thus prolonging the life of the furnace considerably. Extensive experiments have shown that in many cases dry press ware withstands spalling due to sudden and

(Now turn to Page 897)

A Movement to Improve Refractories

Refractories Manufacturers Association Sending Out Questionnaire to Users to Obtain Data on Furnace Conditions Refractories Are Required to Meet

RESEARCH IN REFRACTORIES—particularly in connection with the manufacture of refractory brick—has been largely confined to laboratory work. A movement has been started, however, which has for its purpose the uncovering of a mass of information with regard to the furnace conditions which confront this material in actual service. It takes the form of an industrial survey, which will be conducted by the Refractories Manufacturers' Association in cooperation with committees which have already been appointed in associations of users of refractory brick and with individuals, firms and corporations to whom refractory brick is an industrial necessity.

This survey will consume the better part of two years and it is hoped that preliminary reports will be made at the end of the first three months, the first half year and so on, until the survey is completed. These reports will cover the information which will be gathered by using a rather elaborate questionnaire; this questionnaire will be distributed to consumers of refractory brick in the 13 industries to which the bulk of this material goes. These include blast furnaces, stoves and connections; open-hearth furnaces and metal mixers; heating, puddling and forge furnaces, cupolas; malleable furnaces, oil refineries; gas plants; glass houses; by-product coke ovens; zinc, copper and lead refineries; boilers; cement, lime and plaster kilns and kilns for burning ceramic products.

Questionnaire Covers Variety of Subjects

The questionnaire covers temperature and combustion conditions found in the typical furnace, abrasion, slag action, the presence or absence of uncommon furnace gases, spalling conditions, loads, insulation, character of draft, and so forth. This information will be sought in a large number of industries and the answers to the questionnaires will be sent to the Mellon Institute of Industrial Research, at Pittsburgh.

When enough information has been received to warrant the issue of a progress report in any single industry, this report will at once be made; it will include a statement of the more general and possibly typical conditions, with data relative to conditions which would properly be considered exceptional in that industry. Meagre as these progress reports may be, they will be an important addition to present knowledge.

Different Types of Brick Developed

Attention has been called to the rapidly changing conditions in many industries, caused by the necessity of obtaining greater production from each unit. To meet these conditions, brick of entirely different characteristics have been developed. In a great many cases no attempt has been made to coordinate the changes in requirements with the changes in the refractory material. This has resulted, in many cases, in the use of refractories which, while seemingly well suited for the purpose, did not and could not live up to their reputation. A study of furnace conditions often develops the cause of the trouble; so it is thought that a similar study will develop these conditions in advance of expensive failures.

Every consumer of refractory brick will derive a certain benefit from the successful prosecution of the work described. Wastes will be eliminated, which cannot help but reduce production costs. Intelligent service will follow authentic knowl-

edge of requirements. The whole movement augurs well for the industry which is launching it and for every industry which finds refractory brick a necessary part of its plant equipment.

* * *

LATEST COAL PRICES

Coal production seems to have found a temporary level of 11,000,000 tons per week. This is not adequate to supply the country's needs especially as anthracite production is considerably below the requirements of the consumer. This means that with the advent of cold weather the householder will have to enter the bituminous market to a greater extent than usual making the situation even more acute. Prices in the districts given below are well up altho in general there has been no great increase in the last three weeks. Prices are obtained from the Coal Trade Journal and are those in force December 2.

ILLINOIS—

	Mine Run	Prepared Sizes	Screenings
So. Illinois	\$3.50-4.00	\$5.25-5.50	\$2.50-3.00
Cent. Illinois	2.50-2.75	4.25-4.50	1.75-2.25
Peoria-Fulton	2.50-3.00	4.25-4.50	2.00-2.25
Northern Illinois		5.75	4.00-4.25

INDIANA—

Fourth Vein	3.00-3.25	4.75-4.25	2.25-2.50
Fifth Vein	2.25-3.00	4.00-4.75	1.75-2.00

KENTUCKY—

Southeastern	3.10-3.75	6.00-7.00	3.00-3.50
Northeastern	3.10-3.75	6.00-7.00	3.00-3.50
Western Kentucky ...	2.00-2.75	3.50-4.75	1.25-2.00

OHIO—

Pittsburgh No. 8.....	3.25-3.50	4.00-4.50	3.00-3.25
Hocking	2.75-3.50	4.50-5.50	2.75-3.75
Pomcroy	3.00-3.50	4.50-5.65	2.75-3.25

WEST VIRGINIA—

Smokeless	4.50-6.50		4.50-6.00
Kanawha and Logan..	3.25-4.00	5.75-6.50	2.75-3.50
Fairmont	2.60-3.00	3.75-4.00	2.50-2.75

PENNSYLVANIA—

Pittsburgh District....	2.75-3.25	3.25-3.50	2.75-3.50
Pittsburgh Gas	3.50-4.00	3.75-4.00	3.00-3.50

CENTRAL

PENNSYLVANIA—

(Low volatile)			
South Fork	4.50-5.40		
Miller Vein	4.00-5.00		
Good Clearfield	3.75-4.50		
Ordinary Clearfield...	2.75-4.00		

CONNELSVILLE

DISTRICT	2.25-2.50	3.00-3.50	2.85-3.00
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HOME SHOWS NOW RUN BY REALTORS

Robert H. Sexton, managing director, of New York, has just announced from his office at 512 Fifth Avenue, that next spring the "Own Your Home" exposition in both New York and Chicago will be conducted by the Real Estate Boards.

The aim of these annual expositions is to spread the gospel of home ownership in America, and to visualize the latest and best in house building and home equipment.

The largest building supply houses in the country are now interested in and support this great cause. The "Own Your Home" exposition is common ground where the filling of a great national need and good business can join hands.

Synthetic versus Real Brick

Do You Have to Meet Competition of Substitute Brick? This Article Gives You Arguments in Support of Your Clay Products

William Carver

Architect, Common Brick Manufacturers Association

COMPETENT ENGINEERS will be quite unconvinced, we imagine, by the present attempt of the cement interests to prove that concrete "brick" masonry is stronger than masonry built with real brick. The gist of their contention appears to be somewhat as follows:

"Granted," they say in effect, "that our individual concrete brick are weaker—much weaker—than real brick. But wait until they are laid in the wall. Then their weakness becomes their strength, and in some mysterious way a wall built with our brick is a stronger wall than one built with your better and stronger product."

This theory is seriously advanced, backed up by an array of graphs, formulas, and decimal points in a recent issue of *Concrete*. The evidence presented, however, falls very far short of proving the claims of the concrete people, and some aspects of the few tests upon which the whole topheavy fabric of these claims are based are worthy of attention.

These tests were made upon piers built of real brick and substitute brick. Yet the following observation is made (quoting from the article in *Concrete*):

"It was noted that after failure the bond between the concrete brick and mortar of joints was excellent, while in the case of the clay brick piers after failure the brick were easily separated from the mortar." These results are diametrically opposed to the general experience of those who have tried to apply stucco or plaster to a concrete surface. Special precautions have to be taken to make it adhere, and even then the results are sometimes in doubt. Mortar adheres well to brick, on the other hand, if it is properly laid. And has anyone ever seen, in practice, joints so thoroly well filled as the photographs show the cement "brick" piers to have been, and especially with 1:3 cement mortar in which no mention is made of lime being used? Not the slightest sag or suspicion of a void in any of the mortar joints is apparent, altho we are told that the piers were built by a bricklayer and helper "in the usual manner."

In examining the test data the first arresting feature is the comparative weakness of the average concrete "brick" tested as against the real article. (See table I.)

Comparing Synthetic With Real Brick

It is interesting to compare the strength and quality of the average synthetic "brick" with real brick picked out by the U. S. Bureau of Standards as brick fairly representative of those sold in the New York district when making tests on large brick piers (Technologic Paper No. 111). "Grade 3, soft burned or poorest product marketed" had a compressive strength of 2,710 lbs. per sq. in. The average synthetic "brick," therefore, shows less compressive strength than the "poorest product"—real brick—"marketed" in the New York district.

Still considering the strength of individual units, we may note that real brick of practically any strength desired are made, brick of five, seven, nine, eleven thousand pounds crushing strength per square inch; while official tests of some brick run even higher; 13,000, 16,000, 20,000, 22,000

and brick from Northern New York, have actually shown in a Government test the almost incredible compressive strength of 26,763 lbs. per sq. in., or 1,926 tons per square foot!

Quality of Real Brick Is Evident

And from the user's standpoint it is surely of some moment to be able to judge of the quality of brick easily and surely without having to put every brick under a testing machine. By their appearance and by their ring when struck together can the quality of real brick be easily and accurately judged. Real brick are all clay. No binding material has to be added—and sometimes forgotten or inaccurately proportioned. The quality of synthetic "brick"—even when the exact properties of a few samples have been accurately determined—is not necessarily constant, and it is a difficult matter, involving constant testing and close watchfulness, to tell whether the synthetic brick are being kept up to the standard aimed at by the manufacturers of concrete products.

Mr. A. J. R. Curtis, of the Portland Cement Association, said recently, "Last year an effort was made to burn the negroes out of Tulsa. One of our men went to Tulsa immediately after the fire and found in the ruins a half dozen or more concrete block buildings.... We took out 13 sample



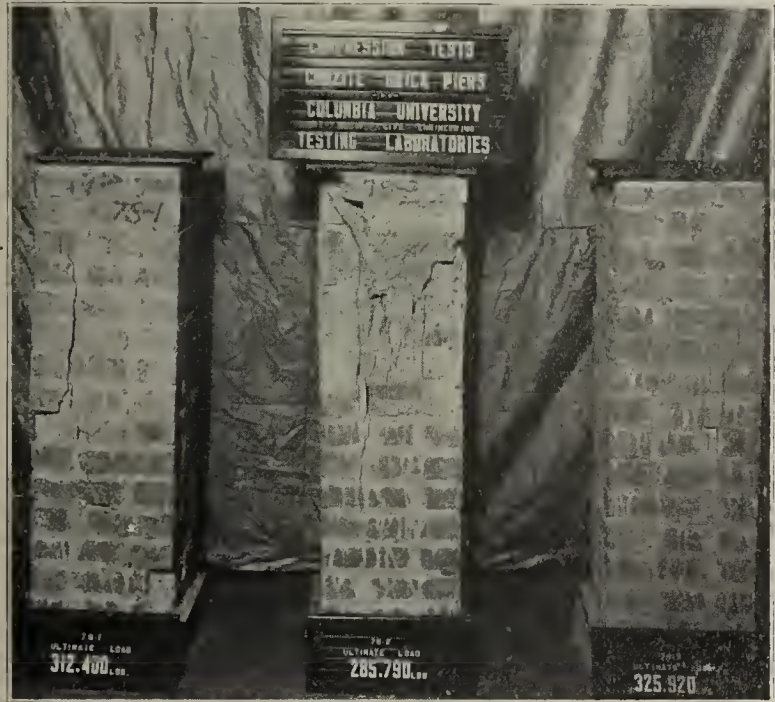
Tested Clay Brick Piers Showing Ultimate Load Each Withstood.

block for test and the average of the 13 was 265 pounds per square inch on the gross section." He said, moreover, "I have doubts about the weathering ability of concrete that would test less than 1,000 pounds to the square inch." And if concrete block are found with only one quarter of the strength they are supposed to have, so will concrete brick

be made below standard by the rather irresponsible type of manufacturer who exists also among producers of concrete products.

Character of Concrete Brick Manufacturer

Mr. John W. Moore, Superintendent of Buildings of the Borough of Queens, New York, said recently, "I know of no business in which it is easier to start up than in the concrete block industry. Men going into that business get a machine, place it where there is a lot of sand, get a few packages of cement, and they are in business." And the



Tested Concrete Brick Piers. Compare the Ultimate Loads with Those Withstood by Clay Brick.

strength of the product turned out depends upon the integrity of this class of manufacturer! No wonder that products are found like those complained of by Mr. Curtis.

Turning now to the developed strength of the piers we are by implication invited to disregard all other data derived from other tests on brickwork, and to narrow our attention down to the few tests under discussion and regard them as typical of all brickwork, even tho the results obtained are much below the general run of either laboratory results or tests of actual brickwork from buildings. Upon this premise is erected the whole theory referred to at the beginning of this article, and upon it rests the credibility of the elaborate formulas, calculations involving proportions and loadings carried to two decimal points, graphs and tables and the rest of the efforts to support a proposition impossible of proof.

High Compressive Strength of Real Brick

Thus, altho the real brick piers tested and reported in Concrete were only 40 inches high, and 12x12 inches square, they did not support as great a load per square inch as did real brick piers 84 inches high and only 8x8 inches square built with New York brick of approximately the same grade and physical properties and tested at Columbia University by Professor J. S. Macgregor and reported in 1916. These latter piers developed a strength of from 1,032 lbs. per sq. in. to 1,685 lbs. per sq. in. with mortar of various mixes, none of which varieties of mortar were stronger than 1:3 cement mortar, the mix used in the tests now under discussion. These latter tests now under discussion indicate the average compressive strength of the brick piers to be only 989 lbs. per sq. in. in spite of their greater cross section and shorter length.

Again, since the theory now being discussed is proposed

to apply all over the United States, it is interesting to note that in tests made at the University of Illinois by Professors Talbot and Abrams, piers 12½ x 12½ inches x 10 feet long, of **underburned** brick laid in 1:3 Portland cement mortar, developed a compressive strength of 1,060 lbs. per sq. in.; while an average shale brick pier laid in 1:2 lime mortar carried 1,450 lbs. per sq. in. at failure, or about the same strength as developed by the reported average column of concrete brick less than half as long, with the same area, laid in 1:3 **cement** mortar. The same shale brick, laid with 1:3 Portland cement mortar in piers of similar area and height (12½ x 12½ inches x 10 feet) carried at failure 3,950 lbs. per sq. in. at six months old, and 3,365 lbs. per sq. in. at 67 days.

Clay Shows Up Better Than Synthetic Product

Piers which were poorly laid on purpose for this (University of Illinois) test developed a strength of 2,920 lbs. per sq. in. at 67 days—about twice the load carried by the reported tests on the synthetic "brick" piers. Tests were made at the same time on round monolithic concrete columns of the same dimensions as the brick piers. Taking the average ultimate strength it was found that plain 1:2:4 concrete columns had only about one-half the ultimate strength of piers of the same age of well burned brick in 1:3 Portland cement mortar, and had much less strength than even the carelessly laid piers.

But the fallacy of the whole argument of the cement interests is nowhere proven more completely than by a report on tests of old brickwork made under the supervision of Rudolph P. Miller, M.A.M.SOC.C.E., formerly Superintendent of Buildings of the Borough of Manhattan. The following are extracts from his report:

"In the course of demolition during August, 1919, of the four story brick building constituting a wing of the former home of the Racquet and Tennis Club at 26 to 28 West 43rd Street, New York City, an effort was made to secure samples of the brickwork for the purpose above indicated. On account of the difficulty in removing the masonry, suitable samples could not be taken from the side walls. The blasting which was necessary to demolish the masonry so shat-

TABLE I

	Individual brick			Piers 12x12x40 in. high in 1:2 cement mortar Compressive strength lb. sq. in
	Comp. strength lb. sq. in.	Transverse strength lb. sq. in.	Absorption	
Average concrete "brick"	2,569	512	10.5%	1,484
Average red brick	3,996	652	not given	989

Reported tests from Concrete.

tered the brickwork that it could not be used for the purpose. An interior brick pier, however, built in an eight inch partition wall in the sub-basement and which could be removed without blasing, was found and was used. The pier was 20 inches square in cross section and about ten feet high. For test purposes it was cut into four sections averaging about two feet in height, and trimmed down to approximately 12 inches by 16 inches in cross section in order to keep within the capacity of the testing machine. Two sides of the specimens were the original finished faces of the pier.

"There was nothing unusual about the character of this brickwork. It was laid up in the ordinary English bond, every sixth course a header, as called for by the New York building code. The workmanship was good but apparently



Examples of Piers after Failure Showing Typical Fractures of Both Cement and Clay Brick.

no especial care was taken to produce superior work. The joints were not thoroly slushed up, as they were in the side walls of the building, and tho the joints were fairly well filled it showed voids here and there in which an ordinary lead pencil could be inserted, such as are not unusual in ordinary, good, acceptable brickwork, representative of what was then and is now being done by contractors who exercise ordinary supervision over their work.

"The brick used were from the Hudson River district and were brand-marked 'Rose.' They were apparently all sound, whole, well-built brick. Tho it had the appearance of having some lime in it, the mortar used was, according to George V. Brown, superintendent for the contractor who erected the building, a straight cement mortar mixed in the proportion of one part of cement to three parts of sand. Atlas Portland cement was used.

Result of Tests

"The building, from which the brickwork was taken, was erected in 1903 by Marc Eidlitz & Son, builders, in accordance with the plans and specifications of Cyrus L. W. Eidlitz, architect.

"The results of the tests are shown in the following table:

Specimens	Height		Area in Com- pression Sq. Ins.	Ultimate Load	
	Inches	Courses		Total lbs.	Per Sq. In., lbs.
1.....	23½	9	193.60	268,970	1,389
A.....	27½	10	206.25	191,000	877
B.....	24½	9	186.34	390,000	2,093
C.....	21½	8	196.00	365,000	1,862

"The low result in the case of specimen 'A' was probably due, in part at least, to uneven bearing on the pressure plate of the testing machine. After the specimen had been placed and the initial load applied it was noticed the bearing at the top of the pier did not seem quite true. The test, however, was allowed to proceed without readjustment.

Average Crushing Strength Is 1,781 Pounds

"The average crushing strength of the four test specimens can certainly be assumed to be a fair value of the brickwork; moreover, it is confidently believed that the average strength of specimens '1,' 'B,' 'C' (1,781 pounds per square inch) would be more truly representative."

It will be noted that these specimens developed the above results after having withstood the stresses and strains of actual use for a number of years, the handling and transporting from the building to the laboratory, and the preparation for the testing machine. And in spite of these handicaps, these honest specimens of actual brickwork, laid on an actual job without thought that they would ever be tested, showed much greater strength than laboratory cement "brick" work, laid especially for testing.

And other considerations beside strength are essential for a satisfactory masonry wall material. Among other qualities which suggest themselves are fire resistiveness, good appearance, low cost of placing, and, what is even more vital still, whether or not the original properties of the material will remain unimpaired after several years' use.

Does Concrete Brick Resist Fire

Regarding the question of fire resistiveness Professor Ira G. Woolson, chief engineer of the National Board of Fire Underwriters, speaking before the Building Officials Conference at Indianapolis in April, 1922, stated:

"It is possible they are making a block today that will give better results than those we have had in the past, but a few years ago I made it my business to make inquiries in regard to the behavior of hollow concrete block walls, where fires had occurred. From references I found in the technical papers to such fires, I immediately wrote to some city official and asked for information regarding the condition of the walls after the fire. I found some of the papers were giving very misleading information. I have in my files now pictures of buildings that have burned walls standing, everything apparently in nice condition, and so reported. Careful inspection of those walls at a later date showed the walls were practically worthless. They were split thru the web. That is where they fail when attacked by fire, on account of the rapid expansion on the inside, and they are not suitable for reconstruction purposes.

Fire Cracks Concrete Tile

"I have in mind a school house, an ordinary two-story school house, near Rochester, N. Y., which was reported to be in splendid condition after a burn out. I had it investigated and found when they came to rebuild they tore the walls down and piled them up as waste and started over again....

"...During a period of four years I did not find a single case—there were not many, I grant, because there were very few reported—but I did not happen to find a case where the blocks were not split thru the middle."

Professor Woolson's remarks concerned concrete block primarily. An engineer would naturally assume that a wall of concrete brick might act in the same way when exposed to fire.

Again, the Portland Brazing & Machine Works Co., of Portland, Ore., makes comparative heat tests on clay and cement brick for the Standard Brick & Tile Co. of the same city. The official test report reads:

"In this test four samples were used.

"No. 1. Cement Face Brick.

"No. 2. Cement Common Brick. Nos. 1 and 2 were obtained at the Brick Co. plant from Mr. as samples of their best brick.

"No. 3. Common Brick from stock pile selected as a fair average of common brick as delivered to the trade by the Standard Brick & Tile Co.

"No. 4. Unburned unit of dry clay from the plant of the Standard Brick & Tile Co. and represents a clay unit ready for burning.

"Test No. 1:

"A small piece was broken from one end of each sample. These pieces placed on a steel plate used as a tray were then placed in the electric muffle in the laboratory of the Electric Steel Foundry of this city with instructions to subject samples to heat at about the temperature at which iron would begin to turn slightly red.

"The report of Test No. 1 shows that these samples were heated for three hours and forty-five minutes at varying temperatures ranging from 670° to 800° Fahrenheit. The results of this test follow:

"Sample No. 1. Water bond partially destroyed, material loosened sufficiently for sample to be broken in hand.

"Sample No. 2. Same.

"Sample No. 3. No alteration.

"Sample No. 4. Slightly hardened and colored.

"Test No. 2:

"Was handled in the same manner as Test No. 1, the samples being heated for five hours and forty-five minutes at temperatures ranging from 830 to 1470 deg. F. The results of this test follow:

"No. 1. Bond practically destroyed, sample beginning to crumble and softened to the point where it could be crumbled in the hand.

"No. 2. The same in a more pronounced degree.

"No. 3. Slightly hardened but otherwise unaffected by the heat.

"No. 4. Burned to about the consistency of the softer common brick known as Salmons. Too hard to be broken in the hands but too soft to be used in buildings.

Cement and Sand Units Can Not Stand Heat

"The conclusion of these tests is obvious. The heat to which the samples were subjected is comparable to heat to be found in the average fireplace, stove, and chimney flue under average conditions excepting that the destructive gases and acids ordinarily found in such flues were not present in this test. These tests prove more conclusively than any other type of informal test that cement and sand units are not suitable for uses to which burned clay brick are well adapted, in construction of any kind where heat resistance without physical alteration is a prime requisite."

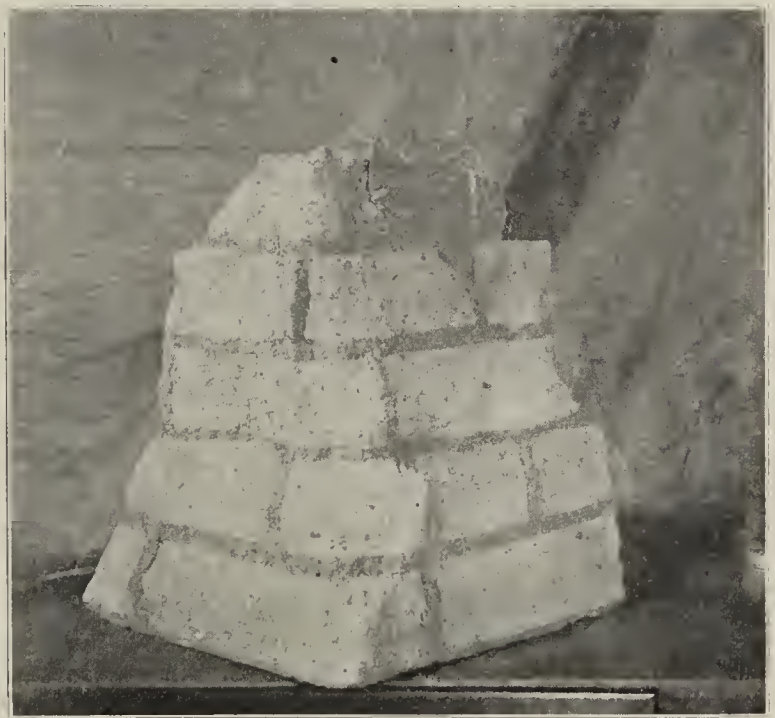
Concrete is a water bond composition with the ingredients cohering by virtue of chemically combined water. Heat of about 450 to 800 deg. F. decomposes this bond. If heat is applied thereafter of approximately 2,000 deg. F. a firebond is produced. Thus if concrete is subjected to enough heat to destroy the waterbond without reaching a high enough temperature to produce a firebond nothing remains to hold the ingredients together and disintegration is the result. Brick are made of clay containing elements which produce a permanently unchangeable firebond when burned in the course of manufacture at 1,600 to 2,000 deg. F. and will be unaffected by any lower temperature thereafter.

Synthetic Brick Harder to Lay

Some synthetic brick have been found by actual experience to be difficult and expensive to lay, this being due to the fact that there is generally a thin film of cement on the outside of these brick, causing them to easily slide on the mortar bed. Thus much time is lost by the bricklayers keeping the brick in place until the mortar has hardened sufficiently to hold them. It was for this reason that the use of synthetic brick was abandoned in the erection of a large car barn in a city just west of Chicago and clay brick used.



Clay Brick Pier After Failure in Tests at Columbia University, Showing Typical Fracture. The Bond Seems to Be Very Poor.



Concrete Brick Pier after Failure in Tests at Columbia University. Note How Perfectly Mortar Joints Have Been Constructed.

It is certain also that some acids and alkalis unfavorably affect the composition of cement brick and cause it to deteriorate and crumble. Much trouble was experienced on the new Grain Exchange in Winnipeg, Manitoba, for instance, because the concrete footings became extremely spongy owing to alkali in the soil. Cracks developed thruout the structure and it began to settle and operations of some magnitude were found to be necessary to make the building again secure. The action of alkali upon concrete brick might reasonably be expected to be similar to the action of alkali on concrete cast into any other shape.

Just what other characteristics and faults of synthetic brick will be developed as a result of actual experience in the years to come, no one can foretell.

Burned clay brick, on the other hand, is the product of the building experience of untold centuries, and has a magnificent record of successful performance under every conceivable condition over very long periods of time.



OUR COUNTRY'S BUSINESS CONDITION

"The outstanding feature of the country's fiscal year (July, 1921, to July, 1922) was that it marked the low point in the most violent commodity slump in our history," says Secretary

Hoover in his annual report. "The liquidation and deflation precipitated the commercial community into all the losses and unemployment that flow from such occasions. It was inevitable that we, in common with the rest of the world, should readjust ourselves not only from the inflated levels of the war but also from the still higher levels of the wasteful postwar boom. During the 12 months prior to the year under review both prices and manufacturing production outside of foodstuffs fell by, roughly, 40 per cent. and in consequence some 4,000,000 to 5,000,000 people were unemployed and business stagnated. The only marked exception to this ratio of decreased activities was the quantitative volume of foreign trade.

"Our recovery has been marvelously rapid, for within 16 months following the bottom of the slump, unemployment was practically extinguished and production was proceeding up to between 85 and 95 per cent. of our normal."



N. P. B. M. A. RAILROAD CASE REOPENED

The National Paving Brick Manufacturers' Association case against the Alabama & Vicksburg Railway and other carriers has been reopened by the Interstate Commerce Commission for further hearing with respect to the description and loading requirements of common brick.



The Building Situation

BUILDING CONTRACTS awarded during November in the 27 Northeastern States (which include about three-fourths of the total construction in the country) amounted to \$248,366,000, according to the F. W. Dodge Co. This total is only two per cent. under the October figures and is 30 per cent. over that for November, 1921.

Residential construction started in November amounted to \$126,468,000, or 51 per cent. of the month's total. This is the largest figure for residential building reported since last June. Other important items in the November record were: \$29,938,000, or 12 per cent., for business buildings; \$29,242,000, or 12 per cent., for industrial buildings; and \$27,516,000, or 11 per cent. for public works and utilities.

Construction started during the first 11 months of this year has amounted to \$3,135,812,000. This is 45 per cent. greater than the total for the corresponding period of last year, and 33 per cent. greater than the total for the entire year 1921.

Contemplated new work reported in November amounted to \$543,872,000, which is 30 per cent. greater than the amount reported in October. The large volume of contemplated work reported during the past few months is an indication that construction is likely to hold up to a relatively high rate thruout the remaining winter months and in the coming year.

The New England district is taking fullest advantage of the favorable weather and continues to advance in construction operations. The month of November at Boston has closed with well over \$2,500,000 in valuation of building permits, according to advance figures of the local building department. Worcester and Springfield follow with work close to \$1,000,000 for the month. The winter season is developing thousands of industrial projects.

Owing to railroad embargoes, a shortage of material looms in sight in this section and there is a marked firmness in existing price levels. First grade, kiln run brick is priced at \$26 a thousand in the Boston market, while New York kiln run grades are selling for \$22 on the job. Water struck

material is at \$40 at the local supply yards, and texture brick, \$50.

The twelve principal municipalities of Connecticut show a weekly average of \$500,000 in new operations, as compared with about \$375,000 at this time a year ago.

New York

Labor troubles have been the center of interest in the construction industry at New York during the past fortnight, mainly between the bricklayers and employers. While the matter, fundamentally, is one of inter-union character, it has sufficient strength to tie up work in a number of instances and bring about general dissatisfaction. A lockout order affecting about 9,000 bricklayers and involving projects totaling about \$100,000,000, has been rescinded and the matter is now to be settled by arbitration. The present agreement with the men expires on December 31, and it is expected that a new contract will be agreed upon prior to that time.

Heavy demand exists for materials in the New York market. The scarcity of different basic commodities continues, and is bringing about a price firmness that seems to indicate higher levels. This is particularly so in the matter of common brick, which has now advanced to \$15 and \$16 a thousand in the wholesale market, with the bulk of sales at \$15.50.

Incoming brick from the Hudson River district is being rapidly absorbed for current account, and buying is above the normal average for this time of the year. Shipments from the yards are averaging 35 cargoes weekly, and sales from 32 to 34 cargoes, leaving but little unsold stock in the market.

The scarcity of building materials and threatened labor difficulties are bringing a return of war-time conditions in the New York and neighboring districts, and a number of contractors are now quoting only on a cost-plus plan of construction. This tendency is holding back speculative building to a certain extent and projects involving several millions are being held in abeyance.

(Continued on Page 898)

We Want Your Best Thought

NEXT YEAR Brick and Clay Record will be 30 years old. To commemorate this event we want your best thought expressing in a slogan of a few short, pithy words your idea of the standing and position held by this journal in the clay industry.

AS HAS BEEN ANNOUNCED in two previous issues, three prizes, \$100, \$50 and \$25, and five prizes of \$5 each will be given to the writers of the best slogans. There are no conditions of any kind; you may send as many slogans as you wish. When you send us your slogan, however, be sure to explain why you picked the slogan you did.

When you write your slogan remember these things:

BRICK AND CLAY RECORD for 30 years has been a source of constant help and inspiration to the entire clay industry. It has always championed worthwhile causes and pointed the way to greater development and higher achievements. It has been a well of information from which manufacturers all over

the country have drawn the ideas which have solved their problems. The concentrated efforts of Brick and Clay Record have always been directed toward this one end: To help the manufacturer carry the burden of producing, selling, collecting and accounting, and overcome the many difficulties entering into the operation of a clay plant.

GO OVER YOUR PAST experiences, note the pitfalls that you have been able to miss because of the warning and assistance of this magazine—then express your sentiments in

an appropriate slogan and send it to us. The response with which this slogan contest is greeted and the number of readers that send in their expressions will be an excellent criterion of the friendships which Brick and Clay Record has won for itself in the 30 years of its association with the men who have made the industry. This is your opportunity, then, to tell what you think of your clay journal.

WE HAVE ALREADY RECEIVED a great many slogans which are an inspiration to us to keep up the work of guiding the industry. Men of all branches are sending these slo-

gans. There are some from the yard foreman and some from the general manager, each one has an equal chance to win not only the first prize of \$100 but to attain the distinction of having his quotation used as a battlecry by the "Leading Clay Journal of the World."

THE JUDGES of the contest will be men who have themselves the task of safeguarding the interests of clay products manufacturers. You will

recognize in the judges, when they are announced in next issue, men prominent in the industry and of proven integrity.

THE CONTEST CLOSES on January 20, and announcement of the winners will be made in the February 6 issue of Brick and Clay Record. All slogans received before noon of January 20 will be accepted and will have an equal chance for the prizes. When you send in your slogans be sure to send your name and address and a short explanation of your reason for picking each slogan, as shown by the sample.

Sample of how to submit slogans in this contest. This one was published as an example on page 718 of the November 14 issue in the announcement of the contest.

I submit the following as an entry in your slogan contest:

"Exponent of the Clay Products Industry."

I have picked this slogan because it epitomizes the fact that Brick and Clay Record has always championed the cause and preached the gospel of the increased use of every form of burned clay and has assisted every individual manufacturer toward the same end by showing him how to improve his quality, reduce his costs and increase his production.

Management and Superintendence

A Continuation of Digests of Proven Plant Betterment Ideas—Suggestions for Overcoming Difficulties

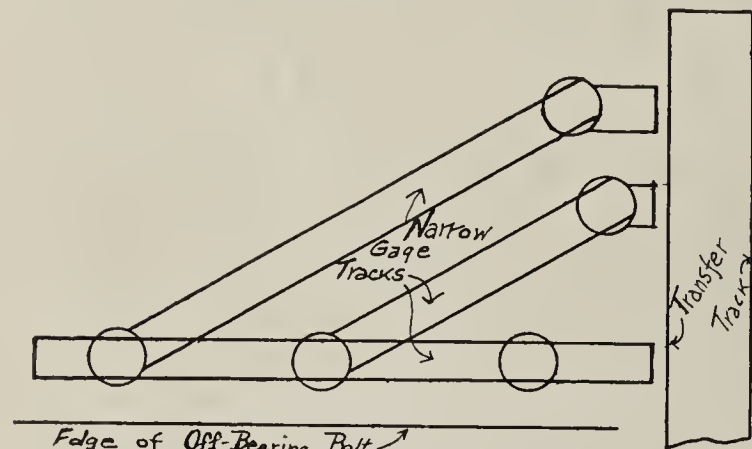
USES MANY PLANT BETTERMENT IDEAS

There are many devices for reducing the amount of labor and improving plant conditions at the Hancock Brick & Tile Co. of Findlay, Ohio. One unusual feature is the fact that the plant operates all year but the digging operations are carried on only during the summer season. The raw material is surface clay. There is a storage shed at the plant which is 224 feet by 40 feet by 24 feet. This holds between six and seven thousand tons. The entire digging department is operated separately from the rest of the plant, so that the hoisting engine can be operated whenever there is any clay to be hauled to the plant. The shovel



Temporary Wheels Which Are Placed Inside of Standard Wheels, When It Is Desired to Move Shovel on Narrow Gage Track.

is operated at such a speed during the summer that sufficient clay is dug to completely fill the shed by the time that digging operations are discontinued in the fall, in addition to supplying the current factory needs. A special pair of wheels are then placed under the steam shovel as shown in the illustration. This enables it to run on the same 36-inch narrow gage track used by the locomotive and cars in hauling the clay from the pit to the factory. The shovel moves from the pit to the factory in a few hours' time and is then placed on a standard gage track which runs lengthwise thru the storage shed. The shovel is used in the shed to reload the clay in storage. The bucket dumps the clay into an auger feeder, which is self contained, is driven by

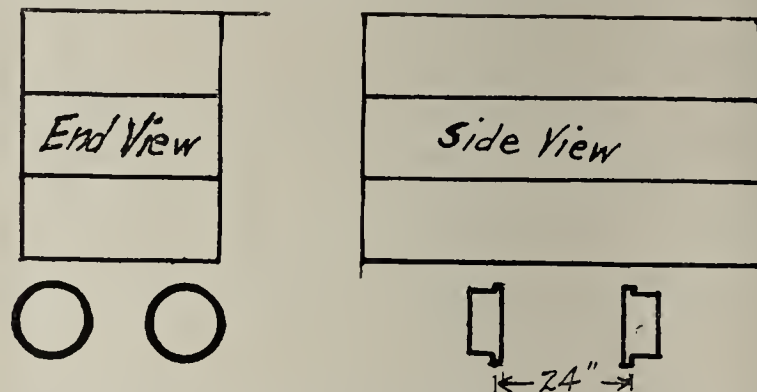


Layout of Dryer Car Tracks with Respect to Off-Bearing Belt and Transfer Track.

motor and moves forward or backward with the shovel. The auger feeder deposits a continuous feed of clay onto the conveyor belt. This system enables the plant to dig the clay both in the pit and from the storage with the minimum of expense. All of the track used is of 55-lb. rail, and the locomotive weighs 14 tons.

All of the clay, whether fed directly from the pit or from

storage, is put through a 50-foot rotary dryer and all of the screenings from the grinding and screening operations are discarded. The clay as used is very fine. One of the special features of this plant that insures capacity operations at all times is the



End and Side View of Triple Deck Dryer Car. The Wheels Are Placed at Right Angles to the Usual Construction.

fact that the entire equipment is operated in three distinct units, first the digging and hoisting, second, the grinding, and third the manufacturing. The first is entirely separate from the others. The only connection between the second and third is a steam pipe from the same boilers. Each has its own steam engine.

There is a bin for ground clay holding 300 tons. This insures continuous operations even tho the grinding machinery is forced to shut down for some reason. The clay is transported by screw conveyor to the pug mill and fed by disc feeder.

This company makes drain tile from four inches to eight inches



Hopper of Coal Being Dumped Into Bin Automatically.

on a combined horizontal machine, and from 10 inches to 27 inches on a steam press. The auger machine has a capacity of 100 four-inch drain tile per minute. The clay for the large tile is tempered in a pug mill and combined machine, which has a special die with numerous holes. This eliminates the use of a wet pan. The small tile are dried in tunnels and the large sizes on slatted floors. The offbearing belt for the small tile is constructed so that three cars can be loaded at the same time, and tracks are provided so that no car is moved after it is once in place at the offbearing belt, except on the turntable. Each car stands on a turntable while being loaded so that the man does not have to reach the full width of the car when offbearing

the tile. He loads the nearer side first and then turns the car and loads the other side. This decreases the chance for the man to damage the ware in offbearing. The cars are built from an unusual pattern to enable them to be turned at the belt without taking up too much room. The dryers are heated by waste heat to a temperature of 240 degrees.

The coal is unloaded by a bucket and conveyor system. One



Wagon of Tile Being Hauled Into Doorway of Car from Which Location Tile Are Unloaded as Shown.

man will unload a drop bottom car in less than two hours. The bucket is dumped automatically above the bin at the point shown in the illustration. Carts haul the coal from the hoppers at the bottom of the bin. One very fine improvement at this plant is a complete system of concrete runways. These are wide



Special Grate Which Has Three Renewable Castings at Point of Greatest Wear.

enough for carts and also for the wagons that are used for transporting the ware from the kilns to the railroad cars or to storage. The use of the wagons for loading the ware is shown in the illustrations. Five men unload a kiln containing 100 tons in about nine hours by this system.

There are several other plant betterment features at this

plant. All of the shaft bearings are equipped to use the Alemite system of pressure lubrication. This is the same as used extensively in automobile lubrication. In addition they use a grate of their own design. The main part as shown in the illustration is of the ordinary type, but a slot is provided at the lower end into which the three small bars shown are made to fit. The detail of the construction of these small bars is shown by the one placed at an angle in the upper part of the picture. The hole is provided so that a bolt or rod can be passed thru all three and thus fastened to the main part of the grate. These grates are inclined at 45 degrees in the firebox. The top of the grate is the part on the ground in the illustration.

The company has an excellent way of keeping a record of their tools and repair equipment. The stock room has the outline of every saw, hammer, sledge or other tool painted on the wall in the exact position occupied by that piece when it is in place, hung upon hooks. Small numbered tags are provided, several for each man employed. When a man takes out any tool he places one of the tags carrying his number on the hook provided for the tool. In this simple way, it is easy to trace any tool if it is needed and not in place in the store room. This system also keeps the store room in much better shape as there is a special place provided for every tool.

This company keeps duplicate parts in stock at all times and aims to make every part of the plant trouble and fool proof to insure high quality production at full capacity.



MOVES WARE WITH ELECTRIC TRUCK

The Adel (Ia.) Clay Products Co. has successfully solved the problem of moving burned ware from kilns to car or to stock pile. This company makes use of a storage battery industrial truck and platforms which look like small cars. The illustration shows one platform ready to be loaded and the other one loaded ready to be pulled to the railroad car.



A Strong Back and a Weak Mind, the Standard Requirements for Wheelers. Are Not Necessary with This Type of Equipment

These platforms hold about 180 5x8x12 hollow tile and the equivalent of other sizes. When used in loading brick, they hold 500. This truck equipment makes a round trip from the kilns to the car in two minutes.

In addition to the economy of operating this kind of equipment and the fact that they can empty their kilns quicker, there are two other distinct advantages. First is that they can use men who have less experience handling burned ware, and the second is that they do not lose any ware on

account of wheelbarrows dumping on the road between the kilns and cars. This latter item frequently increases the cost considerably.

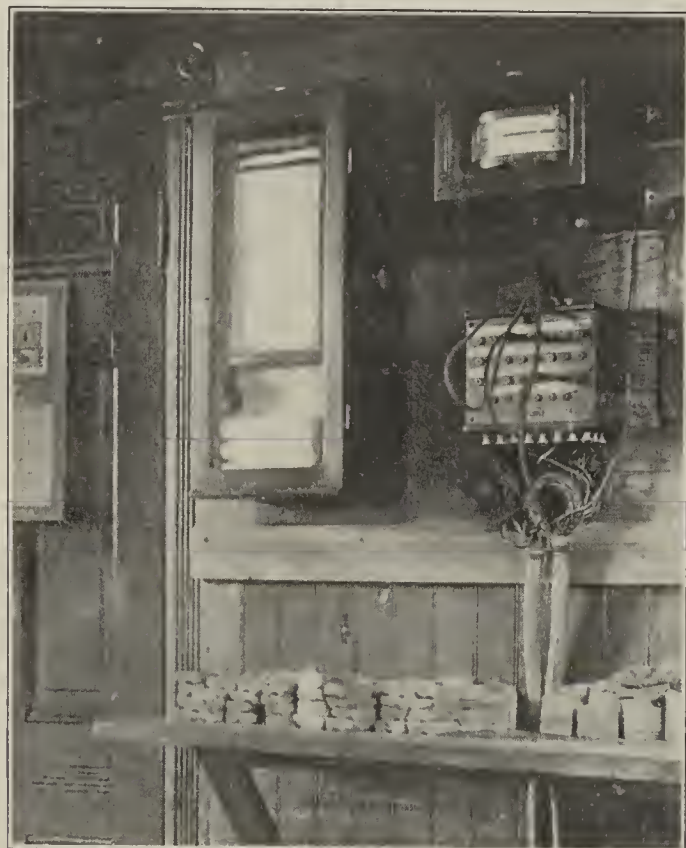
This equipment was manufactured by the Elwell-Parker Electric Co., of Cleveland, Ohio.



PYROMETERS AID SUPERINTENDENTS

A thoro check on burning results is kept at the plant of the National Fireproofing Co., at Ottawa, Ill. A Brown indicating and recording pyrometer installation indicates in the office of the superintendent the temperature of the various kilns on fire. There are 25 kilns at this plant. In addition, the trials are taken out of the kilns and kept for future comparison and record. A number of them are shown in the illustration.

Another system to show the condition of each kiln is employed at the same plant. A board on the wall is equipped with one



Indicating and Recording Pyrometers, and Shelf Holding Trials at National Fireproofing Co.

hook for each kiln and metal discs are hung on these hooks to indicate the condition of each kiln. The discs are of three colors, a white disc indicating that the kiln is watersmoking, a red one that it is on full fire, and a black one that it is not on fire at all. A kiln that is cooling, being emptied, being set or standing empty, comes in the last classification.

A glance at this board in the office of the superintendent tells him in an instant the condition of every kiln on the yard, and is an index to the kiln or kilns that should be connected to the indicating and recording pyrometer.



HANDLES DAMAGED WARE EASILY

A very good method of feeding waste material back to the pug mill is in use at the Ottawa, Ill., plant of the National Fireproofing Co. There is a chute lined with metal attached to the side of the offbearing belt opposite to where the men stand. This



Very Convenient Chute and Elevator for Waste Material Located at Side of Belt Opposite to Off-Bearers.

chute inclines to the bottom of the elevator shown in the illustration. The elevator raises the waste to the pug mill.



PLANER DIGS FROM LONG BANK

The pit conditions at the Ottawa, Ill., plant of the National Fireproofing Co., are different from those in most plants. The



Shale Planer Loading Cars. The Bank Is About 15 Feet High. The Electric Locomotive Hauls 12 Cars Each Holding Four Tons.

shale is dug by a Powell Shale Planer which works in a straight line, that is, the planer does not move in a circle when digging. One of the advantages of this type of planer is that the track



Principal Difference Between This Planer and Others Is That It Is Built to Operate in a Straight Line on a Long Bank.

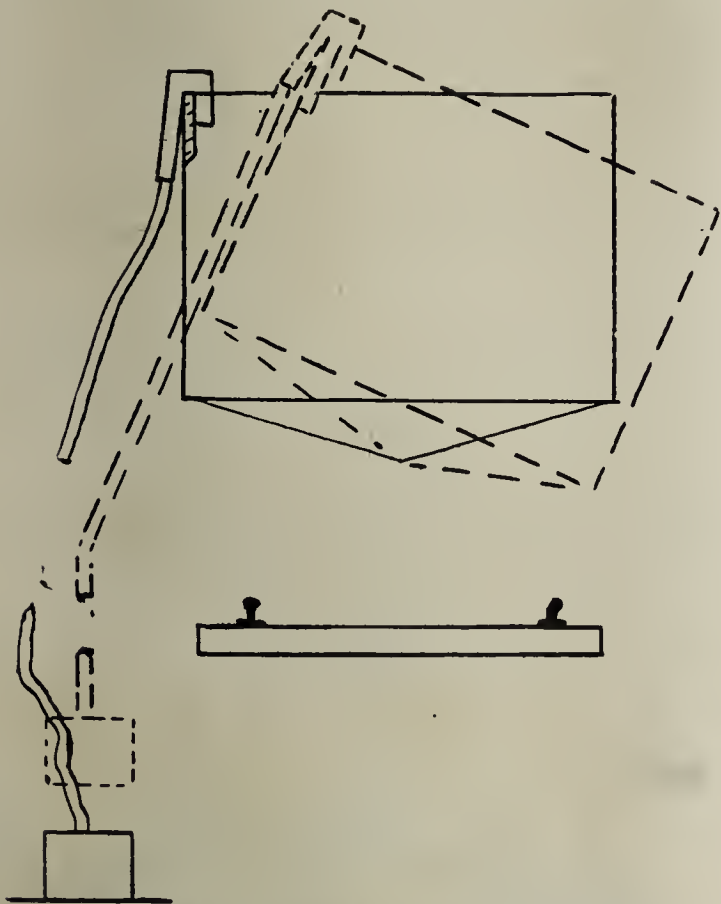
on which the cars are to be loaded, is parallel to the bank before and after it has been cut. Beneath the deposit of shale, which is about 20 feet thick, this plant has a six-foot vein of fire clay which they dig by steam shovel.

All of the material is hauled to the plant in rocker dump cars each holding almost four tons. A 10-ton Goodman electric locomotive is used to haul these cars in trains of 12 to the plant, a distance of about two miles.



COUNTER WEIGHT HOLDS CAR ON TRACK

In some instances, dumping the load from a side dump clay car, especially if it is on a trestle, results in accident because the sudden dumping of the car causes it to turn over into the pit into which the clay is dumped. This is



Positions of Clay Car Before and After Being Dumped. The Former Position is Indicated by Solid Lines. Note Especially That the Weight is Supported and the Cable not Taut Before the Car is Dumped. The Dotted Lines Show Position After Being Dumped.

obviated in the case of the National Clay Works of Mason City, Ia., by hooking onto the side of the car opposite to the dump a heavy cable which has a large cast iron counterweight on the end. When the car is dumped, this extra weight on the high side prevents the car from going off the track.

The car is dumped from the top of a high trestle and would cause heavy losses if it left the track and fell into the bin or pit.



SAVING \$20 DAILY IN HANDLING LABOR

The superintendent of the Walker & Frank Brick Co., at Detroit, Charles R. Tobin, is constructing a conveyor that he expects to pay for in savings in a short time. At present the rate for loading the brick from kilns to cars is 60 cents, but there is always trouble in getting men to load the lower part of the kilns, because the railroad track is on the same level as the lowest course of the kilns. This means that the wheelbarrows have to be pushed up a runway, and, just the same as at other plants, it is often difficult to get men to do this work. As a result the actual cost often runs as high as \$1 per thousand.

Mr. Tobin is building an elevating conveyor. He intends to use gravity roller conveyors to handle the brick and when the lower part of the kiln is being loaded will use this elevating conveyor to take the brick from the roller conveyors and elevate them into the car. This equipment will consist of a belt mounted on a frame which is portable so that it can be moved from place to place.

It is estimated that this conveyor system will cost \$750.00, but the cost of loading should be reduced on an average from 60 cents to 40 cents. A saving of 20 cents per thousand multiplied by 100,000 (the daily capacity) means \$20 per day. This saving will more than pay for the equipment in less than two months.



FROM DRYER TO KILN WITH ONE MAN

The Morey Clay Products Co., of Ottumwa, Ia., has a continuous kiln that was built many years ago by the founder of the company, Mr. Morey. The work of getting the ware from the dryer to the several chambers of this continuous kiln formerly required five men. The company has lately built a transfer track around the end of and down both sides



View Showing Curve in Transfer Track at End of Continuous Kiln.

of this kiln as shown in the illustration. The transfer car is of the standard type, electrically driven, with power derived from overhead trolley. By means of this installation, the labor required for moving the ware from the dryer to the kiln has been reduced to one man.



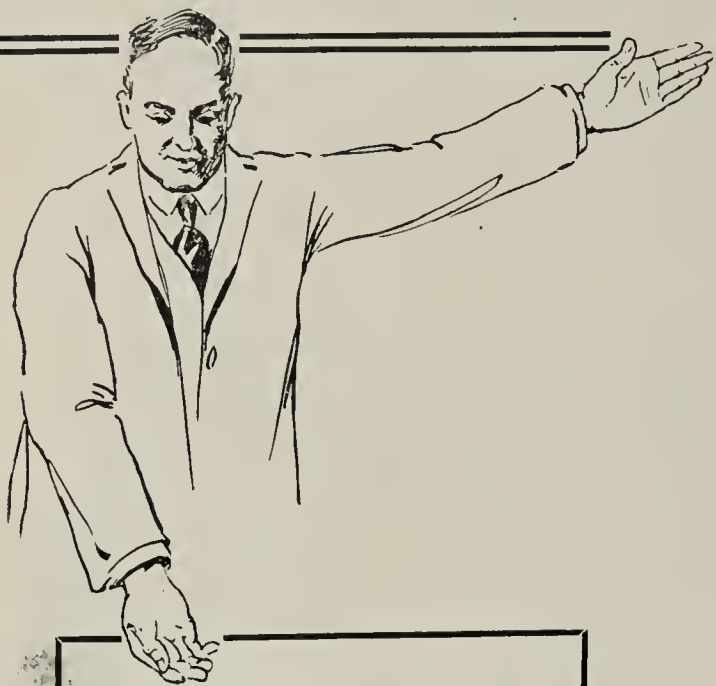
TELLS WHY ASSOCIATIONS ARE VALUABLE

E. A. Dixon, secretary of the Common Brick Association of San Francisco, Cal., recently made the statement that, while the association in San Francisco is small, and its operations necessarily limited and largely pro forma, it nevertheless realizes the value of organization, and that in a national way, it is productive of good for the industry. Mr. Dixon recalled how during the war some half dozen manufacturers went to Washington to see if they could not get some of the government construction work that was going to the cement manufacturers. These men were told plainly that they would have to have an organization like the cement men, so that the government could depend on the delivery of large contracts. So they went home and organized; and out of the next five bids, the brick manufacturers landed three and the cement men two.



The average output of common brick in the United States is valued at more than \$80,000,000 annually.

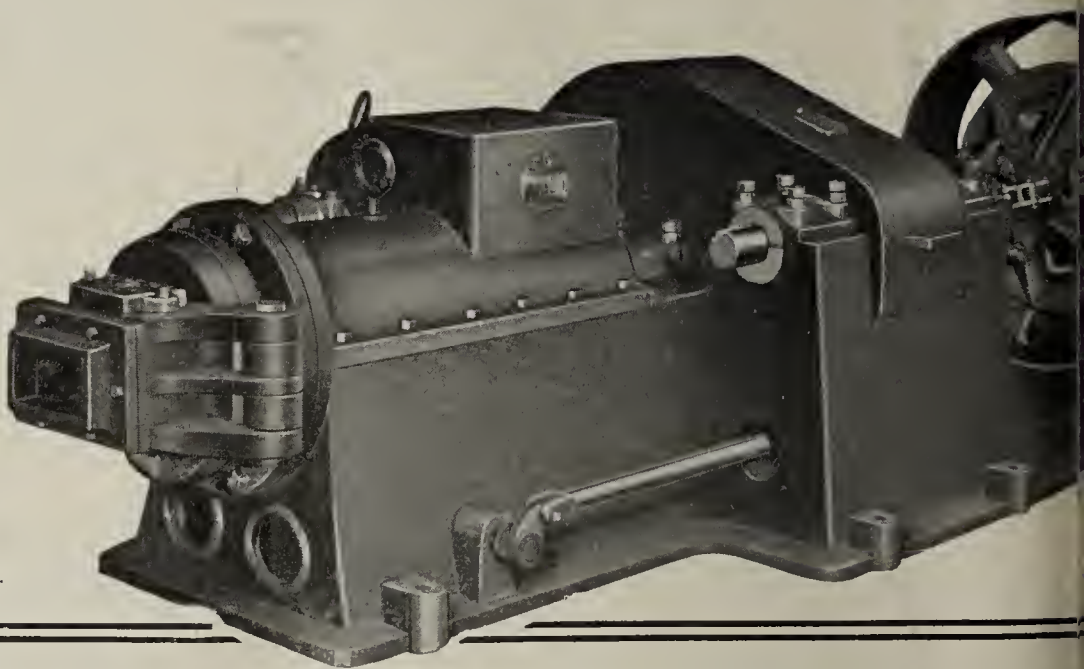
PLANT BETTER



Auger Machines
 Pug Mills
 Dry Pans
 Crushers
 Disintegrators
 Cutting Tables
 Berg Dry Press
 Dryer - Waste Heat
 Dryer - Metallic Radiation
 Dryer - Producer Gas
 Dryer Cars
 Represses
 Clay Feeders
 Screens
 Elevators
 Conveyors
 Hoists
 Dump Cars
 Transfer Cars
 Turntables
 Continuous Kilns
 Periodic Kilns
 Roofing Tile Machinery
 Trackage
 Transmission
 Pottery Machinery

SIX YEARS AGO we started to build an entire new line of Clayworking Machinery—Equipment that was simpler than that in use—Machines with fewer parts and those essential parts heavier and of better material—Equipment that required less repairs and attention.

This was a big job, and a costly one, but we did it well, and today International New One-piece Base Auger Machines, Pug Mills, Low Frame Dry Pans, Dryer Cars, etc., have been in operation for several years with such low cost for upkeep that it is indeed a remarkable achievement.



INTERNATIONAL C

DAYTON,

NEW YORK

TORONTO

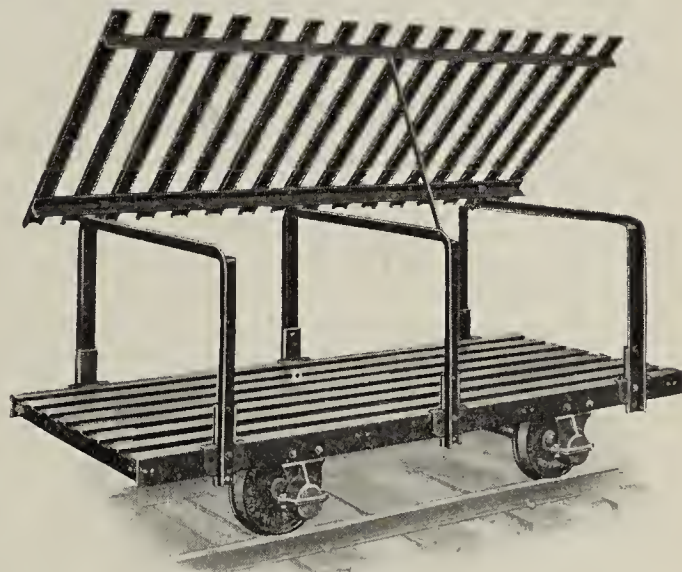
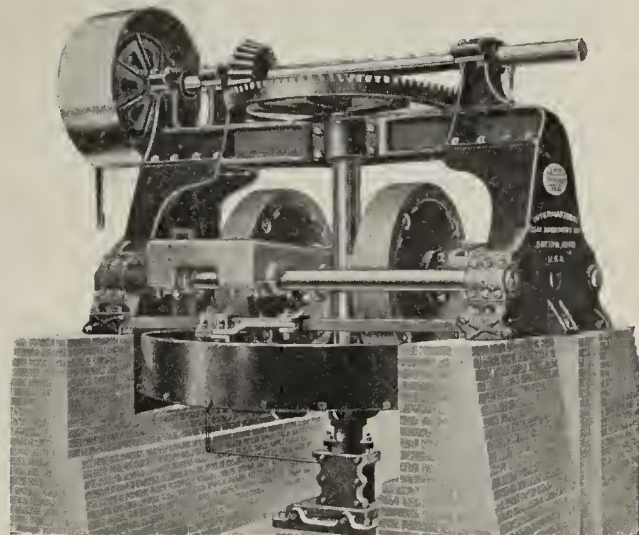
NT EQUIPMENT

INTERNATIONAL New One-piece Base Auger Machines, with two main shafts, gears and castings, purchasers advise us are making more ware with less H. P. and fewer repairs than any machines they have ever used.

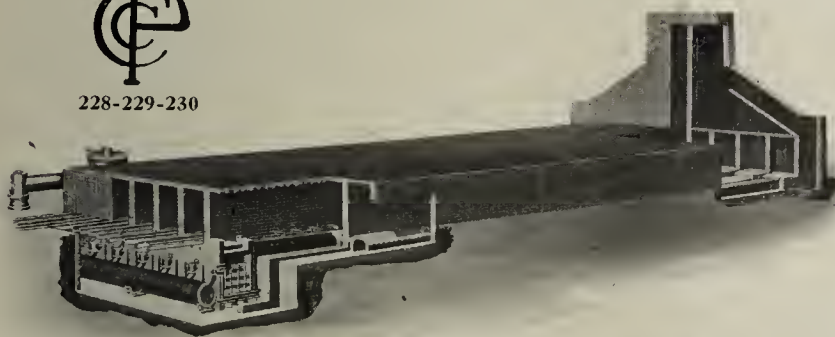
INTERNATIONAL New Ten-foot and Nine-foot Heavy Duty Pans are a revelation to customers in capacity and quality of wearing parts. In fact, one customer recently advised that his New Ten-foot Pan was the "Sweetest running Pan" he had ever seen.

INTERNATIONAL New Metallic Radiation Dryer, with wider radiators, gives a greater radiation per foot of tunnel than any previous Dryer of this type.

INTERNATIONAL Dryer Cars fitted with our new flexible oil reservoir bearings have been in such demand that this Department of our factory has been operating day and night for over three months.



228-229-230



Y MACHINERY CO.

OHIO

NADA

PITTSBURGH

FINE CERAMIC MANUFACTURE



A Department Devoted to Practical Problems in the Manufacture of Higher Grade Ceramic Products Such as Whiteware, Including Electrical Porcelain, Floor and Wall Tile, Sanitary Ware, etc., as Well as Stoneware, Terra Cotta, Special Refractories and Other Articles Where High Grade Clays Are Employed in Their Fabrication.

THE LARGEST POTTERY IN THE WORLD

A TRAVELING SALESMAN once made the statement that Newell was the largest city in China. A friend overhearing him immediately took issue with him, and argued that Pekin was the largest city in China.

"Well, my geography," replied the salesman, "may not be as good as yours, but if you will get off the train at Newell, West Virginia, you will see a little city with the largest china factory in the world, and it is a poor rule that doesn't work both ways."

The salesman's logic was bad, but his observations correct. The Homer Laughlin China Co. of Newell, W. Va., is $2\frac{1}{2}$ times larger than any other pottery plant in the whole world. It is located just across the Ohio River from East Liverpool, in the most northerly corner of the northern panhandle of West Virginia. Newell, W. Va., and East Liverpool, Ohio, together form the pottery center of the United States.

The state of West Virginia boasts of many large manufacturing concerns and many great industries, but it is to be doubted if any one has the same relative standing for size in its own line than does the Homer Laughlin China Co. possess in the pottery industry. When we stop to think that every fourth plate, cup, saucer or any other bit of china made in the United States bears the Laughlin trade mark, we begin to get some idea of the magnitude of the concern. But let us delve a little further into some interesting statistics.

Makes Carload of Ware Every Hour

The total capacity of the Homer Laughlin China Co. is one carload of finished products per hour. In one day over 60,000 cups and saucers are made, and other articles in proportion. The plant employs some 2,000 people, 1,400 men and 600 women, the average wage earned at the present time being slightly over \$28 per week. Of the labor, 65 per cent. is skilled and 35 per cent. unskilled. The total sales for one year are—but why not let the man who made the plant what it is tell all this in his own words?

W. E. Wells has been connected with the Homer Laughlin China Co. for more than one-third of a century, and it is to him that the great growth and outstanding success of the company are due. It is his energy and keen business acumen that reared a little two-kiln pottery into the largest one of its kind in the world. In recounting the story of the Laughlin pottery, Mr. Wells also recounts his life's history, both being so closely entwined that either would be banal or inane without the other. They were boys together and have grown up

together, and, we are pleased to say, both are at present enjoying excellent health together.

W. E. Wells' Story

Let us follow Mr. Wells' story just as he told it to the writer.

"The Homer Laughlin China Co.," said Mr. Wells in commencement, "was started in 1871 by Homer Laughlin and his brother, Shakespeare Laughlin, at East Liverpool, Ohio. It was first started with two kilns. The size of a pottery is denoted by the number of kilns it has, and the Laughlin pottery had two in 1871. It was one of the first, if not the first, pottery erected in this country for the making of whiteware.

Highest Award at Exposition

"For several years the growth of the Laughlin pottery was slow, but at an early date its wares had achieved much enviable reputation for superiority of quality and workmanship. In 1876 at the Centennial Exposition at Philadelphia, the wares of the Laughlin pottery received the highest award.

"In 1878 Shakespeare Laughlin sold out his interests in the pottery to his brother, Homer, who carried on the business until the year 1897, when he withdrew, and the present corporation was formed, the name of Homer Laughlin being retained. It was in the year 1889 that I started in with the Laughlin pottery.

"I might say right here, since you ask me, that I was born in Brooke County, West Virginia, and was raised on a farm just across the river from Steubenville. I went to the country schools and later to the high school in Steubenville. After finishing high school I worked in a bank as 'Mud Clerk,' the lowest position in the bank, and later kept books for a wholesale drug company in Steubenville, which position I held for five years, or until I went to work with Homer Laughlin.

Growth of Plant

"I had been working at the Laughlin pottery only six weeks when Mr. Laughlin placed me in charge of the plant and went to the Paris Exposition, and was gone three months. I was brand new at the business, and had either to sink or swim. Fortunately the business was of such a small magnitude that I was able to manage it very nicely. But to get back to the growth of the plant.

"At the time Mr. Laughlin withdrew in 1897 the plant had but four kilns. However, within the next six years this number had been increased to 32 kilns—all being an enlargement of the plant at East Liverpool. In 1905 the company purchased a 500 acre tract of land just across the river from East Liverpool, and laid out the present town of Newell, named for the farmer from whom the land was bought. A suspension bridge was built over the Ohio river and a trolley line was built from East Liverpool to Newell. This work was done mainly by persons interested in the Laughlin pottery. These men at the same time developed the townsite of Newell, and constructed all the public utilities.

"At Newell the Homer Laughlin China Co. built the largest single pottery unit in the world, consisting of 30 kilns under

Editor's Note—This story was written by Dwight H. Teter and published in the Wheeling (W. Va.) Intelligencer.

one roof. The building is immense. It is 660 feet long by 450 feet wide, and is six stories in height. This addition to our plant in East Liverpool gave us a total of 62 kilns. The East Liverpool plant is divided into three units, called Plants No. 1, No. 2 and No. 3, the 30-kiln plant in Newell being designated as Plant No. 4. However, our business kept growing by rapid strides as we began a national advertising campaign so that in 1914 our plant, already the largest in the world, was cramped for room and we built the addition that we call Plant No. 5, consisting of 16 kilns, at Newell. This gave us a total of 78 kilns, and a production $2\frac{1}{2}$ times as great as the next largest pottery concern in the world. I might add that our Plant No. 5 is one of the largest in the United States.

"Now as to the volume of business done by the Homer Laughlin China Co. in dollars and cents. In 1889 the total sales amounted to \$78,000, while last year the amount was nearly \$8,000,000. The total sales of the pottery industry in West Virginia was \$7,500,000. Of this amount our plants in this state sold five million. Of all the pottery produced in the world, the Homer Laughlin China Co. produces one-tenth. We have a distribution in every state in the Union and export some to Canada and Mexico, but we do not solicit foreign business.

Trained in East Liverpool District

"It might interest you to know that of all the potteries in the United States most of them have been established by men who got their training in the East Liverpool district. As Pittsburgh is the center of the steel industry in the United States, so is East Liverpool the center of the pottery industry in the United States. Two potteries on the Pacific Coast were established by East Liverpool people, but they have to send to East Liverpool for their supplies. We can get right here at our doors whatever may be needed in the nature of supplies, and have to send to other localities for nothing but our raw materials. I am frequently asked why the pot-



Part of the Plant of the Homer Laughlin China Co. at Newell, W. V.

teries should be centered around East Liverpool, and if it is because we can procure our raw materials here better than anywhere else. The answer is that a community of trained working men is of more importance in any manufacturing industry than a location in reference to raw materials. The industry in this community has grown from small beginnings 80 years ago; the first small plants were established here for the purpose of producing brown and yellow wares from a clay native in the adjacent hills, and it was not until 30 years later, or about 1870 that the first of these small plants was converted to the manufacture of white-ware. The plants, machinery and working men were available for whiteware manufacture, and the conversion required

only a change of raw material, and, since these materials must be assembled from many scattered points, the East Liverpool district was as well located for that purpose as any other. It possessed the advantage then, as it does today, of being a community of pottery workmen and manufacturers."

* * *

COAST SANITARY WARE PLANT STARTED

Los Angeles is to have a new clay products plant which will manufacture porcelain sanitary ware. After long negotiations by the Los Angeles interests, James Simpson, vice-president of the Abingdon (Ill.) Sanitary Manufacturing Co., has joined forces with the new company and will be the active head of the organization. The company is to be known as the Whiting-Mead Co. and is incorporated for \$150,000. Perry Whiting is president of the company, James Simpson is vice-president, J. M. Bonner, secretary and superintendent of production, and W. H. Mead, treasurer and sales manager.

It is expected that expenditures for the plant and equipment will reach \$250,000 by the time operations can be begun. The two large Russell kilns continuous tunnel, 360 feet long with a capacity of 150 pieces of finished ware each day, are being built. Seventy-two hours will be required in the kilns to burn the ware. One of the features of the plant will be the new type sagger machine capable of turning out 150 saggars daily.

Operations will probably be begun late in December or January. For the first only the smaller pieces of sanitary ware will be manufactured, the manufacture of bathtubs to be started later. The clays to be used in the production of the ware will all be from California deposits.

* * *

POTTERY STRIKE OVER

The strike in the general ware branch of the pottery industry was settled December 9. The men have returned to work and a settlement of the problems involved will be effected shortly. Details will be given in the next issue of Brick and Clay Record.

* * *

BUILDING NEW KILNS

The Hopewell (Va.) China Corporation is planning to build two additional kilns at their plant in that city.

* * *

ENGLISH POTTERS REDUCE PRICES 10% TO COMBAT FORDNEY BILL

While the majority of the chinaware folks in England have been disconsolate as a result of the Fordney tariff bill which imposes an increased duty of ten per cent. on white and 15 per cent. on decorated goods exported to the United States the bone china people are feeling slightly exhilarated. Manufacturers of bone china products stand to benefit as a result of the new tariff measure. Bone china wares from England do not compete with any pottery products of America, hence their exclusion from the increased duties schedule. Being an exclusive production of the English potteries bone china has a substantial advantage over hard paste china made on the continent and in Japan. The present bone china shipments to the U. S. A. are of a very high grade combining great technical excellence with high standard execution. These shipments are not of extraordinary bulk but the demand in America seems to be growing for bone china ware.

As regards the general earthenware industry here the reduction in chinaware prices has stimulated business to some extent. The continental trade in pottery ware from Britain is not good. The export pottery trade with other

foreign countries farther afield is improving. Pottery products now are being made and placed on a larger scale than at any other period this year. Unemployment is down to ten per cent. in the pottery fields. Few factories are working less than four full days a week while some are working the regulation $5\frac{1}{2}$ right along.

The ten per cent. increase on earthenware exports made necessary by the Fordney bill has been counterbalanced by a ten per cent. decrease in price. Already results favorable to the potters in England are being felt at Staffordshire. Some of the large earthenware exporting houses have obtained big and substantial orders from America the last week or so. The importing houses in the United States are most optimistic regarding English earthenware goods and are even going so far as to inform the exporting potters there that a boom year can be looked for in 1923.

As a result of this the English earthenware folks are planning to go on full time as soon as possible and to concentrate on designs typically English. The tendency has been to follow the lead of the French designers. The importing houses in the United States, however, intimate that typically English designs carried out in the production of the highest possible quality goods are absolutely essential. The American importers seem pretty sure that there is going to be a demand for the best quality English ware after Christmas on their side of the water. But in their reports to the English exporting firms they emphasize the need for only the highest grade goods. Otherwise, they

say, the big demand anticipated will not be maintained, since the medium grade wares can be supplied in any quantity by their own potters.

This optimistic note struck by the American importing houses has quite changed the situation of the industry in England so far as the exporting earthenware folks are concerned. Incidentally 100 or more of the pottery firms will exhibit at the British Industries Fair scheduled for London next February.

* * *

BECOMES MILLION DOLLAR COMPANY

The W. S. George Pottery Co. at East Palestine, Ohio, was granted permission by the secretary of state to increase its capital stock from \$500,000 to \$1,500,000.

The move, it was explained at the office of the company, was merely to convert accumulated assets of the concern into stock to meet future needs. No improvements or expansions are planned by the concern at the present time, it was stated.

* * *

NEW FLOOR AND WALL TILE COMPANY

The Tile Products Co., New York, N. Y., has been organized under State laws, with a capital of \$100,000, to manufacture floor and wall tile and other burned clay products, it is stated. The company is headed by E. L. Hendrickson, F. Sellar, and H. A. Treat, New York. It is represented by Delamaro & Morrison, 140 Nassau Street, New York.



Chicago Section A. C. S. Holds Record Meeting—65 Present

SOME 65 MANUFACTURERS, technical men and men interested in ceramics in one way or another were present at the meeting of the Chicago Section of the American Ceramic Society held at the Morrison Hotel, Chicago, December 2. The excellent program attracted men from as far as Champaign and Joliet, Ill. The gathering was quite representative altho there was a preponderance of terra cotta and enamel men.

The meeting began with a luncheon and immediately following it there was a very excellent program. The chairman introduced A. Meyer, assistant principal of Crane Jr. College, Chicago, who spoke of the advisability and desirability of introducing a course in ceramics in the new Crane Jr. College. This topic was a most absorbing one and Mr. Meyer's remarks invoked discussions by Prof. C. W. Parmelee, of the University of Illinois Ceramic Department; W. W. Wilkins, of Lewis Institute Ceramic Department, Chicago, who has been a hard worker for the establishment of a ceramic course in Chicago's secondary schools; Adolph Hottinger, treasurer of the Northwestern Terra Cotta Co. of Chicago, and G. G. Lawson, production manager of the Northwestern Terra Cotta Co., Chicago. Mr. Lawson suggested that a committee be appointed to make recommendations to the Board of Education in Chicago. This it was subsequently decided to do and the chairman appointed Mr. Lawson, chairman; H. T. Bellamy, of the Western Electric Co., and H. C. Beasley, of the Coonley Manufacturing Co.

H. E. Davis Tells of Enamel Smelters

Following this discussion H. E. Davis, of the Northwestern Terra Cotta Co., spoke on "Something Better in Enamel Smelters." He told of the many difficulties encountered in the smelting of enamels and said that several designs had been considered before they hit upon a satisfactory one. The paper was very interesting to all men interested in enamels.

B. T. Sweely, Cribben-Sexton Stove Works, Chicago, gave

a most valuable resume of "Defective Enamels" and outlined causes and remedies. His talk was of especial interest since it pointed out ways of overcoming much of the "grief" encountered in enameling.

Tells Where Technical Man Fits In

"The Technical Man's Position in Production" was the subject which E. O. Herman, of A. D. Little Co., Industrial Engineers, Boston, chose to discuss. By means of some very excellent charts Mr. Herman showed very clearly the technical man's relationship to the production end of business. He urged that the technical man learn the language of the production branch and be able to work with the production men to the mutual advantage of both. His talk was a very excellent one and gave the technical man a clear idea of his position in an industrial establishment.

One of the attractions of the Chicago Section meeting was that every man present had a chance to win a table lamp with a pottery base. C. A. Underwood, of the American Refractories Co., of Joliet, held the lucky number.

New officers were also elected at this meeting and the following are the incumbents for the ensuing year: Chairman, B. T. Sweely, Cribben-Sexton Stove Works, Chicago; vice-chairman, W. W. Wilkins, Lewis Institute, Chicago; secretary-treasurer, H. E. Davis, Northwestern Terra Cotta Co., Chicago; chairman of program committee, D. F. Alberty, Northwestern Terra Cotta Co., Chicago; chairman of membership committee, Alan G. Wikoff, Chemical and Metallurgical Engineering, Chicago.

* * *

MADDOCK MAKING ALTERATIONS

The Maddock Pottery Co., Trenton, N. J., manufacturer of chinaware, has awarded a contract to the Karno-Smith Co., Broad Street Bank Building, for alterations and improvements at its plant on Third Street, to cost about \$4,000.

Cyclopedic News

Devoted to Enlarging the Usefulness of the CLAY PRODUCTS CYCLOPEDIA

Published by
INDUSTRIAL PUBLICATIONS, Inc.

407 S. DEARBORN STREET
CHICAGO, ILL.

THIS WAY ALL YE PUBLIC SPEAKERS

Judging from the number of letters that we are receiving from clay products manufacturers, asking for data on the history of the industry and other pertinent facts as foundations for talks before Chambers of Commerce, Rotary Clubs and similar organizations, the individual members of our industry are becoming very popular in the line of public speaking. This is a very good sign, as it not only reflects credit on each individual invited but shows an increasing public interest in brick and clay manufacturing questions.

There are several parts of our book that can be used as a basis for talks of this kind. For instance item 125 on pages 19, 20 and 21 treats exhaustively of clay, and the many kinds and numerous uses. Again item 111 on pages 15, 16, 17 and 18 gives a very good, altho necessarily condensed, history of ceramics, including brickmaking and other branches of clay products manufacture. Then item 128 on page 136 occupies only 19 lines detailing 14 points that should be considered by everyone considering an investment in any clay products plant. This is a list of the main items that have a bearing on the success or failure of any and every clay product plant. Practically any man can explain these points in such detail that he can make a very interesting talk for any audience and easily take up all the time allowed him.

Prevent Inadvisable Investment

Very frequently a full explanation of these points will show the novice who is contemplating the erection of a plant the infeasibility of his project. Naturally the clay products manufacturer who explains these difficulties in the proper way before it is too late will be benefited by the elimination of the competition which would be very destructive to everyone concerned. A properly constructed plant will assist those already in the industry, but a poorly constructed plant or one which considers only part of these 14 essential points is continually a menace to

its own owners and to every other plant in the industry.

The many points or items on drying, dryers, burning and kilns also offer good food for interesting remarks. The many tests and other data on clay products manufacture contained in the statistical section can also in many cases be digested to provide a foundation for instructive talks.

This book was not published with this in mind, in fact we never considered its use in this way, but developments have shown that it is admirably fitted for this purpose. Everyone is welcome to use it.

This list is a continuation of those items covered under the same heading in our last issue. As explained before, these items are intended to cover only the main points for which a superintendent is responsible, or for which he is expected to furnish the information.

We wish also to mention again that these items are taken only from the statistical section as the items in the definition section can easily be found, since they are arranged alphabetically.

ITEMS MOST INTERESTING TO SUPERINTENDENTS

See page

The use of crushers always entails due consideration to insure that the proper output can be maintained. The angle of nip of roll crushers is explained and the sizes of gyratory crushers listed. 156

Fuel Considerations

The method of the American Society for Testing Materials for selecting and sampling coal occupies four pages starting with. 148

Seven advantages to be gained by buying coal on a heat unit basis, and an explanation of the method of arriving at the correct price per ton 150

Additional data for determining the B. t. u. value of two or more coals when the prices are submitted in different ways, first as moisture and ash free and second, as received, containing moisture and ash..... 163

In these days of difficulties and troubles considering coal supply,

many have turned to oil as a more reliable and, in the long run, possibly, a cheaper fuel. For information on this subject we have an interesting table on the specific gravity of fuel oil, and another table showing the comparative purchasing power of a dollar for various fuels.... 173

We have, moreover, a formula for obtaining the comparative cost of B. t. u. heat units for coal and oil. This is in such a form that the cost can be determined for every possible variation in the items considered 172

One Correction Necessary

In this connection we must call the attention of our readers to one error that we have found on page 173. Directly after the table of comparative heat units, we show the values used in making up this table, and it is stated that oil was figured at 14,400 B. t. u. per gallon. This should have read 144,000.

Exhaust steam is used extensively for drying, especially in the sewer pipe, drain tile, soft mud brick and similar branches. Many tunnel dryers for brick also use steam pipes exclusively. In planning a drying system it is always difficult to determine what length of pipe is necessary in certain circumstances and also what size of main or supply pipe should be used. The necessary data for determining first the radiation per hour per square foot of radiating surface; secondly what length of pipe is necessary to obtain a given radiating surface; and thirdly the size of the main pipe that is required to keep the necessary steam supplied to fill a definite number of small pipes can be found on pages..... 163, 182 and 184

This special index of items that are peculiarly applicable to the superintendent or others in the operating department will be continued in our next issue.

We cannot urge the users of the cyclopedia too strongly to keep this page for reference from time to time when special information is required.

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State Farm, Mass.,
April 17, 1922.

The Eastern Machinery Co.,
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Gentlemen:—

As we have operated your "New Haven" brick machines exclusively for over thirty years, it gives us great pleasure to advise you that we consider this machine the best on the market for soft mud brick production, and as an evidence that we are entirely satisfied with your machine, we have just put in another one this Spring.

Yours very truly,

E. L. COOK BRICK COMPANY.
WSA (Signed) W. S. Atwood, Secy.

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The Letter Box

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and Commented Upon**

MORE ON THE PURCHASE OF COAL

The arguments on the purchase of coal presented in the columns of Brick and Clay Record recently have evoked considerable interest. There are many manufacturers who support the contentions of this journal that it is a wise policy to take care of your March requirements now. On the other hand there are some who are inclined to side with the opinions expressed by Mr. B. W. Ballou of the Kansas Buff Brick & Manufacturing Co. Both these opinions, however, are from the standpoint of the consumer so it will be interesting to get the coal operators' viewpoint. The following letter received by Brick and Clay Record from Robert T. Bowman, president of the Bowman Coal Co., Trenton, N. J., gives some further opinions on the very vital question of coal purchases. Gentlemen:

It is with a great deal of interest that I have been following your articles and arguments relative to the purchase of coal, as outlined by yourself, and Mr. B. W. Ballou of the Kansas Buff Brick & Mfg. Co.

We wish to uphold the arguments of the editor, not from a selfish viewpoint, but because such articles as this assist the coal trade to hold the price within the reach of the smallest consumers.

Mr. Ballou's statement to the effect that if the manufacturers started to purchase coal immediately, the price would go out of sight, and that this was just what the coal trade wanted, is not so. For this reason: The coal trade for years, has been trying to induce the manufacturers to buy their coal supply for the year, in equal monthly purchases, so as to enable the operators to produce their coal on a production basis, which they can base their costs on, and therefore stabilize the market. Another reason why Mr. Ballou's statement is not correct, is due to the fact that the coal trade would have considerable difficulty in obtaining the cars to supply on the orders.

As to the fact that the price of coal will come down in February and April, it is practically impossible. Authorities estimate that the car supply from now until the first of April will average 30 per cent. In other words, the maximum amount of tonnage produced a week is 12 million tons, and it will be reduced to 30 per cent. of that, which naturally will mean that the consumer will be falling off in supply, in their usual supply of 70 per cent. per week.

The railroads are in very poor condition and unable to compete with the ever-increasing demand for shipments. A great deal of the rolling stock is in bad condition and with the probability of a severe winter, and severe storms, the car supply may be cut to still a lower figure.

If all the large brick and clay plants were to purchase coal at once, so as to have enough on hand to last them until April, I do not believe it would make such a difference in the market, due to the fact that it must be remembered a great many of the plants have a sufficient supply to last them until January or even February, which would only mean that a great many plants would have to purchase two months' supply.

When the winter actually sets in, a great many householders who have previously used anthracite, will be forced to use bituminous coal due to the fact that the anthracite operators will not be able to produce enough coal to make up the loss in tonnage which they had to suffer during the strike. Anthracite shipments will receive car preference, and many cars will be shipped to the New England states, which means that it takes a considerable amount of time for the cars to return to the operations.

It must also be remembered that a few of the manufacturers had the foresight last March to lay in a large supply of coal, when they were facing the great coal strike of 1922, and it is a great satisfaction to the coal trade that the number of such manufacturers is increasing, pending the coming of the winter months, and are taking in a considerable supply which will be a great help, and facilitate the coal trade in

handling the stupendous burden which will be thrown upon them to supply coal in January and February.

I wish to assure you that this letter is written with an idea of friendly and constructive criticism of the arguments of Mr. Ballou, and we would certainly be glad to have anybody who wishes to discuss the matter further, write us their viewpoint as we are perfectly open minded in the matter.

We are enclosing a year's subscription for your magazine in view of the fact that we believe the ideals of the Brick and Clay Record are to further interest, and better the general conditions not only of their friends, but the country at large.

Trusting this will help some of your friends in making their decision, and assuring you that we have written in an absolutely unselfish manner and merely in a spirit of friendliness, we are

Very truly yours,
Bowman Coal Company,
(Signed) Robert T. Bowman.

* * *

THE SOFT MUD BRICK DAYS ARE NOT OVER

The following letter has been received by Brick and Clay Record, criticizing a footnote appearing in the October 31 issue. The letter, together with an explanation offered by Brick and Clay Record is reprinted herewith.

Dear Sirs:

In your issue of October 31, 1922, down at the bottom of Page 624, you say "The 'mud brick' days are over."

It has aroused considerable adverse criticism on the part of soft mud sand molded brick manufacturers. It doesn't exactly say soft mud sand molded building brick, but the impression that it gives is that the only brick to be used is a stiff mud brick. We saw it, but didn't believe that you could possibly mean it that way, but so many have seemed to take it that way, that we think you ought to know about it.

As a matter of fact, making building brick by the soft mud sand molded process is in our opinion away ahead of any stiff mud brick that can possibly be made.

We would like to hear from you on the subject, and especially as to what means you feel you can take to counteract this impression that has been given.

Yours very truly,
LANCASTER IRON WORKS, INC.
(Signed) A. C. Scully,
Secy. and Treas.

Brick and Clay Record replied to this letter as follows:

"You should know that we are very greatly pleased to have your comment of November 20 concerning the caption on the bottom of page 624 of the October 31 issue of Brick and Clay Record. In referring to the fact that the mud brick days are over, our idea was to convey the impression only that the days of the hand operated brick mold was over. We are in accord with your idea that building brick made by the soft mud sand molded process under the latest methods of manufacture are of highest quality and produced at cost comparable to the brick made by any other method.

"If we have created other impressions, we are indeed sorry and hope that by publishing your letter together with this reply in our letter-box, it will help to correct the impression that the only brick to be made in the future is the stiff mud or dry press brick."

* * *

POTTERY LEADS CLAY PRODUCTS EXPORTS

More table, toilet and kitchen ware is being exported by American manufacturers than any other line of clay products, according to the valuation of these products. During the first nine months of the current year these lines had an export valuation of \$1,166,786, while fire brick exported had a valuation of \$1,045,615. China and porcelain ware exported had a valuation of \$144,633. Refractory shapes to the value of \$103,747 were exported by American manufacturers during this term and building brick was valued at \$160,174. Hollow building tile exported during this three-quarter period was valued at \$76,073.

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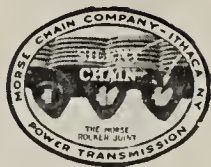
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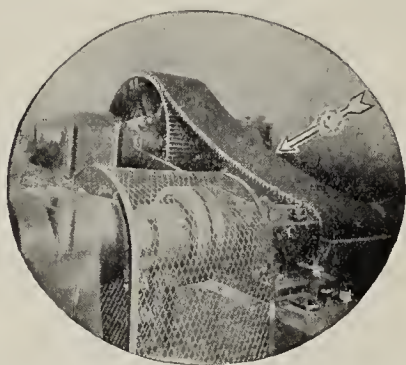
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Questions and Answers

Best Authorities in Every Clay Working Branch Are Called Into Consultation—Their Advice Is Free to You, Thru These Columns

Address all communications intended for this department to "Editor Questions and Answers, care of Brick and Clay Record," Chicago

HOW CAN GREEN BRICK BE MADE?

1,057. Wisconsin—Can you give us any information in regard to the use of zinc coloring matter for producing greenish shades in brick? We are manufacturing a rough texture, stiff mud brick which is burned from clear red to black; our material being a plastic clay.

We have been advised that similar brick are turned green by means of zinc oxide and if you know of any companies using this process will you kindly give us their names?

One manufacturer replies to this question as follows:

"With reference to the matter of producing greenish shades on brick, any information which we might give would only lead to confusion inasmuch as there seems to be a difference in opinion here at our own plant as to the exact cause for the greenish shades. It is true we use zinc, but the primary object in doing so is to clean out the soot deposits in our tunnels and stacks as our plant is located on damp ground which we understand was formerly a swamp. Several burns where zinc was not used showed green, which would confirm the opinion that the greenish coloration was rather due to the manipulation of the dampers at various stages of the burn. We have a complicated system of dampering which could hardly be explained by letter as it varies in proportion to the humidity of the atmosphere. We understand greenish shades are produced at the ——— plant without the use of zinc, which would lead us to believe it is a question of damper control and the character of the shale rather than the zinc. We know of several plants who have used zinc oxide which have been unable to produce green shades. We regret we cannot answer more intelligently."

Another reply stated:

"We manufacture green brick. It has taken us three years to get the effect to where we want it. There is absolutely nothing in zinc that will make green brick. It will unite with the chemicals in clay in a very few instances causing a greenish cast but generally not good enough for the market.

"We have two kinds of shale at our plant. One of these is a plastic shale same as your inquirer is asking about. We have experimented on several kilns of the plastic shale as we can hold the edges better on this kind of material to get this effect and absolutely can do nothing with it. I therefore judge that your party would be unable to do anything with the plastic shale. He might sprinkle a little zinc oxide on the bars as it comes from the machine and roll it in for an experiment and if he does not have the proper chemicals in his shale to eat up the white deposit which may be left, he can readily see that the white effect will be a greater detriment than what little green he obtains would be worth. By doing this we know he will get some green effect and it is just a question whether or not the chemicals in the shale will neutralize the white effect. If it does not he is out of luck."

✻ ✻ ✻

"As solid as a brick" is historical but now they are said to be making what they call "brick" with all kinds of substitutes for clay.

Salem Elevator Buckets



We are manufacturers of the original SALEM ELEVATOR BUCKET which is used for handling all classes of materials in many different industries.

This type of bucket is of one piece construction, with rounded contour throughout; smooth in form, durable in service and clean in handling and delivery of materials.

There are no seams in front nor on the ends, the laps being made on the back and bottom at the ends. On the back the laps are riveted or spot welded; on the bottom the end pieces are bent under and hammered tight.

The widest range of service is covered by a very full line of regular types and sizes and made in various gauges of steel, from the lightest practical for ordinary work to the heaviest necessary for the most severe duty.

Write for new price list.

THE WEBSTER MFG. COMPANY

4500-4560 CORTLAND ST., CHICAGO

Sales Offices in Principal Cities

Drawn from the Kilns

Being Brief Mention of a Host of
Interesting Happenings in the Varied
Fields of Clay Manufacturing

DEATH TAKES G. D. DALTON

George D. Dalton, 63 years old, brick manufacturer and contractor, and leader in civic, moral and religious affairs in Louisville, Ky., died this afternoon after a short illness. Mr. Dalton was a native of Springfield, Tenn.

J. H. APPLGATE LEAVES THE CLAY INDUSTRY

Joseph H. Applegate has sold his brick plant at Trenton, N. J., and will not be associated with the brick and clay industry any longer. The site of his plant will be used for building lots and converted into building real estate.

GRIM REAPER TAKES E. W. WILLIAMS

Elliott W. Williams, well-known retired brick manufacturer of Clarksburg, W. Va., died at his home there on October 31. Mr. Williams established the first brick plant at Clarksburg some 30 years ago. Aside from his connection with the brick industry, Mr. Williams was prominent in religious and civic activities at Clarksburg.

B. S. SMITH SUCCUMBS TO ILLNESS

After an illness lasting but 30 hours Bergen S. Smith, of Humboldt, Kan., passed away. Mr. Smith was a well known figure in Humboldt and at the time of his death was vice-president of the Humboldt Brick Manufacturing Co. When but a boy Mr. Smith came West and was employed by a dry goods company in Kansas City. His advancement from a rather humble beginning in the business world was steady and at the time of his death he had earned an envious place for himself in Humboldt.

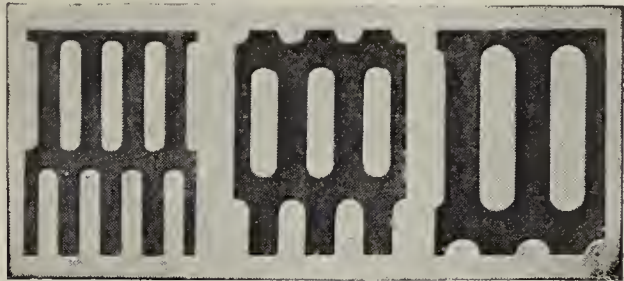
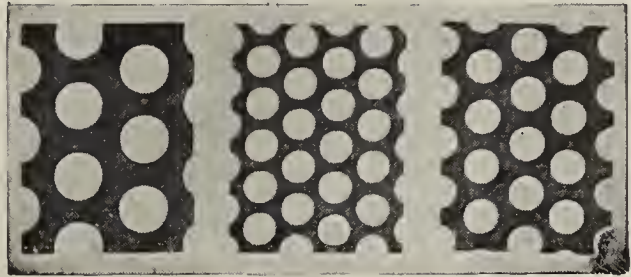
BUILDING SUPPLY NEWS MAKES A HIT WITH GARRAUX

While demonstrating the art of playing golf with a souvenir cane presented by Building Supply News, at West Baden, Ind., during the American Face Brick Association convention, E. V. Garraux, of the B. Mifflin Hood Brick Co., Raleigh, N. C., met with an accident. The handle of the cane broke in the impact with the floor and its flight thru the air was arrested by Mr. Garraux's eye, which immediately turned a beautiful black and blue. The black eye did not bother Mr. Garraux nearly as much as did the explanations afterward.

A CORRECTION

Altho Brick and Clay Record strives for accuracy at all times and in all its material there nevertheless are times when mistakes will creep in. Attention has been called to the item in the November 14 issue commenting on the death of J. W. Bates. The notice stated that Mr. Bates was responsible for the success of the brick plant at Norwood, N. C., which was owned by the B. Mifflin Hood Brick Co. The Carolina Shale Brick Co., Charlotte, N. C., has informed Brick and Clay Record that it was Charles C. Davis who built the plant and superintended its operation since its erection. The Carolina Shale Brick Co. owns the plant at Norwood, and the B. Mifflin Hood Brick Co. of Atlanta, Ga., is its selling agency.

Perforated Steel Screens



For Screening Clay, Shale, Sand, Gravel, Stone and Cement

All sizes and shakes of holes in metal of proper thicknesses to give the best screening results.

Sheets furnished flat or rolled to shape for revolving screens.

THE HARRINGTON & KING PERFORATING CO.

635 N. Union Ave., Chicago, Ill.

NEW YORK OFFICE: 114 Liberty St.

WOULD YOU LIKE TO MAKE BETTER BRICK ?

USE R. & H. PRECIPITATE CARBONATE OF BARIUM TO PREVENT SCUMMING AND THEREBY PRODUCING BRICK THAT ARE RICHER AND DEEPER IN COLOR, CLEANER AND CLEARER IN APPEARANCE.

IF YOU ARE TROUBLED WITH SCUMMING, WRITE US TODAY FOR CIRCULAR.

THE
**ROESSLER & HASSLACHER
CHEMICAL CO.,**

NEW YORK

CHICAGO
BOSTON
PHILADELPHIA

TRENTON
NEW ORLEANS
PITTSBURGH

KANSAS CITY
CLEVELAND
SAN FRANCISCO

TORONTO PANS

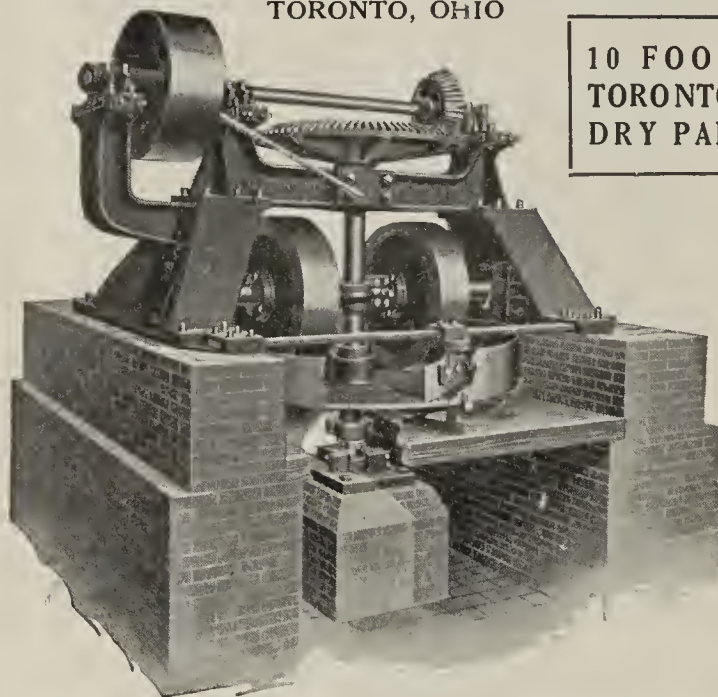


244-245

are used to-day in the most successful plants in the country. They solve grinding troubles, save labor, require less maintenance, and upkeep, and improve quality of product.

Write for particulars.

THE TORONTO FOUNDRY & MACHINE CO.
TORONTO, OHIO



**10 FOOT
TORONTO
DRY PAN**

GUS F. SMITH ENTERS CLEVELAND FIELD

Gus F. Smith, formerly with the Kelley Island Lime & Transport Co., Cleveland, Ohio, has been appointed sales manager of the Cleveland Clay Products Co., Cleveland, by Leo A. Krueger. Mr. Smith is considered a valuable addition to the Cleveland Clay organization. He is a Cornell graduate, was a lieutenant in the army over seas in the World War and started a rubber industry in Europe after the close of the war. He is best known in the Cleveland and Ohio territory in the building supply industry, however, and already is covering the field in his new work.

E. D. CARTER, OF ERIE, DIES

E. D. Carter, of Erie, Pa., for many years identified with the clay working industry in Northern Ohio and Western Pennsylvania, died at his home in Erie on October 24. He was best known in recent years as a director of the Denison Interlocking Tile Corporation, Cleveland, having been connected with that firm ever since its inception seven years ago. He also was president of the Pennsylvania Fireproofing Co., at St. Mary's and Erie, and was interested in the Pennsylvania Tile & Construction Co., at Boston. He was vice-president of the Security Savings & Trust Co. of Erie, and connected with other financial and industrial institutions.

BIRMINGHAM SHIPMENTS EASIER

Birmingham manufacturers of clay products are now enabled to ship their products more readily than for several months past, according to John W. Sibley, sales manager of the Birmingham (Ala.) Clay Products Co.

Some of the brick and tile manufacturers of Birmingham have been shipping large orders to Cuba, South America and Mexico. Birmingham's water route to the sea, over the Warrior River and thru the port of Mobile, has been of great assistance in these shipments besides effecting a saving in freight over the railroad route. Birmingham clay manufacturers are of the opinion that they will be able to do a good business with South America, Cuba, Mexico and countries of the Orient by shipping over the Warrior River route and through the Panama Canal.

RECTOR COMPANY BURNING WITH OIL

Business at the plant of the Rector (Ark.) Brick & Tile Co. has been very good but on account of the coal shortage the company has not been in a position to take full advantage of it. No more trouble with the fuel supply is anticipated by the Rector company, however, since an oil burning system has been installed and the products will henceforth be burned with crude oil. Oil from the Eldorado fields in Arkansas will be used.

ARKANSAS MAY GET NEW PLANT

Reynolds Brothers have announced that they are interested in the formation of a company at McRae, Ark., for the manufacture of brick.

TUCSON SELLS BRICK AT LOW PRICE

Secretary A. H. Condon, of the Tucson Builders' Exchange, has compiled a table of figures showing that Tucson, Ariz., along with Milwaukee, Columbia, S. C., and Chicago, has the lowest priced brick in the United States, the price being \$12 per thousand. Mr. Condon claims that the local brick are as good as any, and uses these facts as an argument and inducement for extensive building.

MARYSVILLE TO MAKE FACE BRICK

According to Manager L. A. Williams, the Marysville (Cal.) Brick Co. has received molds for the making of face

DESIGNED TO WORK



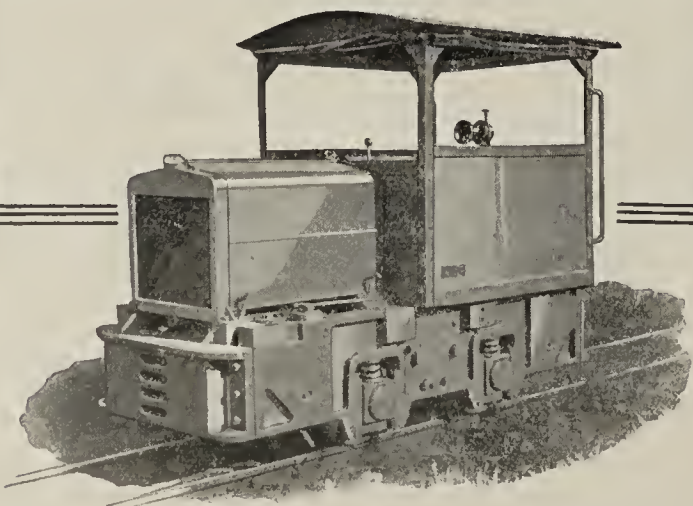
BUILT TO OVERWORK

WHEN IT COMES to HAULING

The new Whitcomb is the job for your pit. Equipped as it is with a Wisconsin overhead valve motor, removable radiator core, roomy cab, allowing clear vision in all directions, and other marked improvements, it naturally leads the field of gasoline locomotives. Let us show you where a Whitcomb will reduce your hauling costs.

Write for full description

GEO. D. WHITCOMB CO. Rochelle, Ill.



brick, and the plant will now turn out three kinds of brick, common, face and clinker. This company has burned its second kiln of 250,000 brick. In the early days a large proportion of the brick used in California were from the Marysville territory; but the industry there gradually fell off, and has but recently come back.

L. A. Pressed Brick Company Announces a Reduction in Prices

IN THE midst of a building activity unprecedented in the history of Southern California, L. A. Pressed Brick Company announces substantial price reduction in Face Brick—effective at once. These reductions average about 10%.

L. A. Pressed Brick Company is of the opinion that a revision downward in the prices of building materials may be influenced by a leadership assumed by some manufacturers with determination enough to take this step.

Hence, even though confronted with a tremendous demand for Face Brick, L. A. Pressed Brick Company, following a well-established policy of keeping faith with the public, announces this lower price in Face Brick.

This reduction is due the public and is made possible by a higher efficiency attained in manufacturing and greatly increased output.

Howard Frost,
President

L.A. Pressed Brick Co.
ENTIRE SIXTH FLOOR - FROST BLDG
Second and Broadway
Phone Main 542 - 6047

The Farsighted Policy of the Los Angeles Pressed Brick Co. Which Has Made That Company One of the Most Prosperous on the Pacific Coast Is Reflected in This Advertisement Taken from a Los Angeles Daily Paper.

SANTA MONICA PLANT STARTS

It is reported that the new plant of the Santa Monica (Cal.) Brick Co. has begun operations. The plant has a production capacity of 50,000 brick daily.

GLADDING, McBEAN BUILDING STORAGE

Gladding, McBean & Co., of Lincoln, Calif., are building a new building which will be used as a clay storage. The structure is of steel, 80 x 90 feet.

GATHER AT OLD-FASHIONED BARBECUE

The members of the Common Brick Association of Los Angeles County on November 15 treated themselves to a picnic and barbecue at Ganesha Park, Pomona, Cal. About 50 were present from different parts of the county. Among the speakers were Mr. Simmons, of Los Angeles, one of the active promoters of the organization. Talks were also given by Mayor Ovington and W. D. Frederick of Pomona. This association is one of the live organizations of the Southwest, and has not only done much to promote the development of their own industry, but to aid in the development of the Southwest.

MAXIMUM HEAT FROM YOUR COAL—

Even Temperatures—and Reduced Costs, with Marion Portable Kiln Grates.

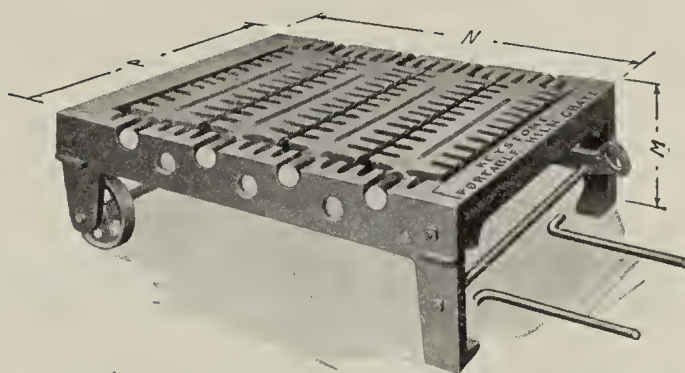
Marion Portable Grates are recommended not only because they do all this, but because they continue to pay their owners dividends long after they have repaid the first cost.

Ask for descriptive details.

MARION MACHINE FOUNDRY & SUPPLY CO.

P. O. Box 395

Marion, Ind.



Why Western Brick Co. of Danville Use Electric Steel Grate Bars—

1. Cost less.
2. They weigh from 4 to 5 lbs. less than iron.
3. Are free from breakage around yard.
4. Burn out much more slowly than iron.
5. Obtain double service because they can be reversed.
6. Easier to handle.

Write for Complete Information

ELECTRIC STEEL CASTINGS CO.
Indianapolis - - Indiana

E. LINES, PRESIDENT
J. D. CONNOR, VICE-PRESIDENT

PHONE 135

JAS. T. WHITING, SEC. Y. TREAS.
U. S. G. WILLIAMS, MANAGER

MT PLEASANT BRICK AND TILE MFG. CO. (INC.)

MT PLEASANT, IOWA Jan. 16th, 1922

The Brown Instrument Co.

Philadelphia, Pa.

Gentlemen:-

We are returning your letter of Jan. 12 so as to need less words to explain this letter.

We have been using a Brown Recording Pyrometer since 1912. It is evident from your letter that you have us on your mailing list wrong. We would be glad to meet Mr. McDermott and talk over the use of Pyrometers on round down draft kilns, but of course it would be too much of a waste of time and money for him to call unless he has business here with others.

Our Pyrometer is in good working order yet. We have only bought one new thermo couple during this time so that the upkeep has been remarkably small. We have three kilns on which we use these Thermo Couples. With best wishes for your business among clay workers we are,

Respectfully

Mt Pleasant Brick & Tile Mfg. Co.

Per. U. S. G. Williams Mgr.

Brown Pyrometers

Most used in the world

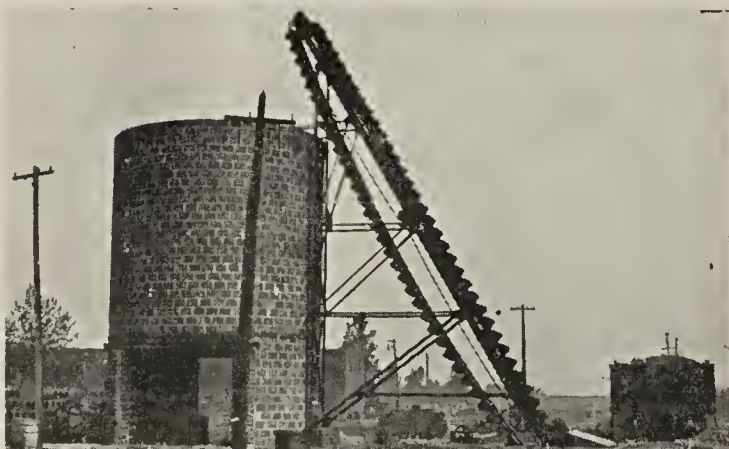
SUNBURY

AUTOMATIC CAR UNLOADER

Loads or unloads coal at the rate of 30 to 50 tons every hour. Only one man needed.

Let us tell you what other clay plant operators are doing with the Sunbury in saving time, money, and labor.

The Sunbury Manufacturing Co.
Sunbury, Ohio



One thing the association has effected is the establishment of a course in bricklaying in the vocational training courses of the Los Angeles public schools. Classes are held every Monday, Wednesday, and Friday at the Grand Avenue school, and Tuesday and Thursday evening at the Lincoln high school. These classes are turning out competent bricklayers very rapidly, and the pupils are graduated as soon as they become proficient. Every branch of the trade is taught, and many experienced men are attending some of the classes.

DENVER COMPANY TO REBUILD

The Colfax Pressed Brick Co., Denver, Colo., has preliminary plans under way for the rebuilding of the portion of its plant on Clay Street, near Eighteenth Street, recently destroyed by fire, with loss estimated at close to \$30,000, including equipment.

R. O. CLARK SOON TO BE ALL YEAR PLANT

R. O. Clark & Son, of Berlin, Conn., expect to have their new dryer building completed in about one month. The improvement includes a spacious building of 60,000 brick capacity and a boiler house equipped with two 150 horsepower boilers. The yard production from April 1 to November 1 was 35,000,000 brick. All year 'round manufacturing will be undertaken with the completion of the present improvements.

STILES & REYNOLDS REBUILD DRYER

Stiles & Reynolds has rebuilt the drying shed destroyed recently by fire at the Berlin, Conn., yard. An automatic soft mud brick machine and dryer are recent improvements now coming into use.

The B. Mifflin Hood Brick Co. recently filed a copy of its charter. This company is capitalized at \$50,000.

EVANSVILLE TRAINING BRICKLAYERS

Following the example set in cities in various parts of the country, Evansville, Ind., has now established a course in bricklaying in the seventh and eighth grades of its schools. The boys will be given instructions by a competent man who will go from school to school. It is hoped that many bricklayers will be added to the trade by this course of instruction and so help to relieve the acute shortage prevailing everywhere in this trade.

INDIANAPOLIS PLANNING BIG HOME SHOW

The second Home Complete Exposition, to be held in the manufacturers' building at the state fair ground from April 2 to 7 next year under the auspices of the Indianapolis Real Estate Board, will be even more pretentious than the first exposition held last spring. The exposition last year attracted nearly 75,000 persons by actual count and members of the board declare the next exposition should draw considerably more than 100,000 persons.

FARMERS SELLING FIRE CLAY

Farmers in the northern part of Porter County, Ind., have a new occupation. They are selling clay to the steel mills in Gary for hearth lining. Clay in layers of from four to sixteen inches is said to be quite suitable for use as hearth lining and is being found by farmers about 18 inches from the surface of the ground. The dirt is scraped off, the clay removed and the top dirt replaced. Drains prevent these low spots from becoming water soaked. The method of removing the clay is said to have no material effect on crops. Some farmers in that section are reported to have made a profit of approximately \$4,500 an acre in this manner without seriously injuring the growth of crops.

POSTPONE CHANGE IN IOWA RATES

The Interstate Commerce Commission has suspended until March 25, 1923, the operation of certain schedules published in Agent E. B. Boyd's tariff I. C. C. No. A-1335. The suspended schedules propose to cancel the present commodity rates on brick and articles taking brick rates and on drain tile from Mason City and Rockford, Iowa, to Watertown, S. D., and to apply class rates in lieu thereof, resulting in an increase on the rate on brick from 16 to 22½ cents per 100 pounds, and on drain tile from 16 to 23 cents per 100 pounds, between Mason City and Watertown.

IOWA COMPANY BELIEVES IN SIGNS

One of several attractive road signs which the Rockford (Ia.) Brick & Tile Co. uses to advertise its products is shown here. It is approximately 15x40 feet and is located at a



One of the Signs Which the Rockford (Ia.) Brick & Tile Co. Has Built.

strategic point. The company has just recently built a sign in Nora Springs, Ia., that is 20x75 feet. This sign is situated so that it can be seen from two railroads and is located on two important highways. It will be electrically lighted at night and will be one of the largest signs in Northern Iowa.

CAR SHORTAGE CLOSES SALINA PLANT

So serious has the car shortage become for the Salina (Kan.) Brick & Tile Co. that officials recently decided to shut down the plant. The company has 2,500,000 brick on hand and many orders on the books but can not get cars to ship them. It is not likely that the plant will be reopened before spring.

LOUISVILLE PLANTS STILL BUSY

Louisville brick manufacturers as well as the jobbers are getting an excellent run of business as a result of a large volume of business in connection with work that has been started and which will assure steady delivery thruout the winter, or whenever the weather permits of work going ahead. So far the fall has been about as open as ever known, and work has progressed nicely, with late fall and early winter business coming out more than usual.

Most of the brick houses have good orders on hand and are making deliveries as fast as contractors can accept material, and are planning to run their plants as close to capacity this winter as weather conditions will permit, even to transferring fresh brick from kilns to stock and doing the extra rehandling necessitated. It is believed that while the year has been a fair one, next year will be much better.

PUBLISHES ATTRACTIVE FOLDER

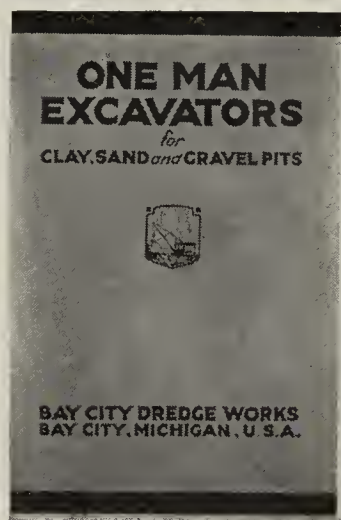
The Savage Mountain Fire Brick Co., of Frostburg, Md., has put out an interesting four-page folder entitled "Reasons Why Brick Construction is Cheaper Than Frame." Many arguments are advanced for brick construction and convincing figures given to back up the statements.

PLANT BETTERMENT SERVICE

A sincere interest in your problem, together with common sense methods and a broad experience makes this service highly profitable.

Write for details

WALLER CROW, INC.
Engineers
COUNSELLORS IN INDUSTRIAL
OPERATION & FINANCE
327 S LA SALLE STREET
CHICAGO



*This new book
mailed to you
free in the in-
terest of plant
betterment.*

*Write for your
copy today.*

*No
obligation*

The Complete Story of the One Man Excavator

The Digger Developed For The Average Sized
Brick and Tile Plants

The machine that digs, loads and mixes enough clay, for a capacity of 25,000 to 100,000 per day at an average cost of \$8.00 per 10 hours. An excellent machine for stripping. Saves enough over hand labor to more than pay for itself in a short time, besides improving your ware thru a better mix. Caterpillar or track mounting, gasoline or electric power.

The whole story is told in our Catalog E, which is yours, for the asking.

BAY CITY DREDGE WORKS
BAY CITY, MICH.

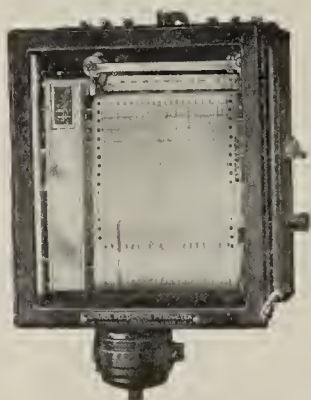
THIS WINTER

When winter sets in—and the thermometer begins to drop—when the snow falls and colder winds blow—how are you planning to hold even temperatures? Will they fluctuate with the weather, or will you have perfect control?

Bristol's Pyrometers afford a perfect control of all temperatures up to 3000° Fahrenheit. They accurately indicate and record, thus giving your burner immediate warning in case of sudden drop or rise in heat.

Ask for our latest catalog
AE 1401—the most complete pyrometer catalog ever published

The Bristol Company
WATERBURY CONNECTICUT



STEVENSON

DRY PANS

WET PANS

ROLL CRUSHERS

SEWER PIPE PRESSES

SEWER PIPE TURNERS

TILE PRESSES

PRESS FEEDERS

CRUSHER FEEDERS

PAN FEEDERS

BUCKET ELEVATORS

GRAVITY ELEVATORS

BRICK BARROWS

TILE BARROWS

SEWER-PIPE BARROWS

GIGS

ETC.

THE
STEVENSON CO.
Wellsville Ohio

Western Sales & Engr.
Office

801-802 Monadnock Bldg.
Chicago, Ill.

Bulletins
on
Request

BALTIMORE COMPANY BUILDING NEW KILNS

A report recently received states that the Baltimore (Md.) Brick Co. will erect five kilns in the near future. These additions will materially increase the capacity of the plant.

RED WING PLANNING TO REBUILD

The Red Wing (Minn.) Sewer Pipe Co., manufacturer of vitrified clay pipe, has tentative plans under consideration for the rebuilding of the portion of its plant destroyed by fire early in November, with loss approximating about \$150,000, including machinery.

A. C. OCHS SHIPS THOUSAND CARLOADS

927 carloads of brick and tile have been shipped since the first of the year by the A. C. Ochs Brick & Tile Co., of Springfield, Minn. These figures do not include the drain tile which the plant has manufactured and which would swell the total considerably. The company has been operating steadily the entire year and employed a crew of approximately 75 men. It has been estimated that the company will use approximately 7,000 tons of coal during this year.

DIGGING A LAKE TO STORE WATER

In order to insure a steady supply of water for its plant the Wellsville (Mo.) Fire Brick Co. is digging a large lake or reservoir near the plant. The lake will be more than a quarter mile in length and 20 feet at the deepest point.

FULTON SHIPS RECORD NUMBER OF CARS

The record of shipments of the Fulton (Mo.) Fire Brick Co. for the first 22 days of November totaled 126 car loads of fire brick products, while the biggest previous month's shipment was 120 car loads. Orders on hand assured the officials that the record for the first 22 days would be maintained to the end of the month. Besides breaking shipping records the company also is breaking payroll records, and one day in November the men at the plant earned almost \$2,000. C. O. McNamee said that the company could handle a much larger force than at present but the men are hard to get because the housing facilities in Fulton are such that they can not get homes in which to live.

RAILROADS' FIGHT REFUND TO WALSH

The railroads of Missouri are preparing to resist in the courts the recent ruling of the Missouri State Public Service Commission in the Walsh Fire Clay Products Co.'s case against six carriers, the Rock Island, Missouri Pacific, St. Louis Merchants Bridge Terminal, Terminal Railway, St. Louis & Hannibal and the Chicago & Alton, in which the commission ordered the roads to return \$1,234.60 to the clay products company, contending freight rates charged were excessive and unlawful. Commissioner Edwin J. Bean, who wrote the decision, ordered the refund paid within 30 days. The commission contends it inherited the power to order refunds from the old Railroad and Warehouse Commission.

PERTH AMBOY TO GET NEW COMPANY

The Middlesex Hollow Tile Co., Perth Amboy, N. J., has been organized under state laws, with capital of \$100,000, to operate a plant for the manufacture of hollow tile in that district, it is said, and existing works will be acquired. The new company is headed by John H. Christine and others prominent in the industry in the Raritan River section. The company's registered office is at 215 Rector Street, Perth Amboy.

NEW JERSEY MEN INTERESTED IN FLORIDA

New Jersey clay interests, headed by Robert W. Lyle, Keasbey, N. J., have organized, under Delaware laws, the Palatka Clay Products Co., with capital of \$300,000, to operate

clay lands in Florida, it is reported. The company is said to have secured a large tract of property, showing fine clay deposits, and proposes extensive operations. Others interested include Alexander H. Jackson, Rutherford, N. J., and Elliott Norton, New York. The company is represented by the United States Corporation Co., 65 Cedar Street, New York.

CARY BRICK CO. LOSES SHED

One of the storage sheds at the plant of the Cary Brick Co., Newton Hook, N. Y., was destroyed by fire November 26, with loss estimated in excess of \$5,000. It is proposed to rebuild the structure.

CLAY PRODUCTS COMPANY FOR LONG ISLAND

The Drury Mfg. Co., Mineola, L. I., has been incorporated under state laws with a capital of \$15,000, to manufacture brick, building tile and kindred burned clay products. The company is headed by W. F. Drury and R. C. Hunt. It is represented by T. C. Horton, Rahway, N. J.

NEW COMPANY IN GOTHAM

The International Tile Co., New York City, has been organized under state laws with a capital of \$25,000, to manufacture building tile and other burned clay products. The company is headed by B. Chavin, K. London and M. Estelle. It is represented by Edward Petigor, 5 Beekman Street, New York.

GETS ORDER FOR MILLION TILE

The Snyder Brick Co., Ottawa, O., will operate thru the winter for the first time in its history. An order for 1,000,000 hollow tile has been received. This is the largest order ever placed with that concern. The plant will be kept on full capacity for months.

TO MAKE CEMENT, NOT CLAY PRODUCTS

In the last issue of Brick and Clay Record the incorporation of the Target Brick & Tile Co., of Cleveland, Ohio, was announced. The item stated that the new company would manufacture clay products. This was in error; the brick and tile to be manufactured will be cement.

FORM NEW COMPANY IN CLEVELAND

The Pennsylvania-Ohio Fire Brick Co., of Cleveland, has been incorporated with a capital of \$20,000 to manufacture and deal in brick and other clay products, it is reported. Incorporators are: Katherine Thieroff, A. G. Bender, William C. Adams, Alphons Viviani, and Harold Clarkson.

INVESTIGATING MISSOURI DEPOSITS

C. H. Iddings of Cleveland, Ohio, representing Pennsylvania brick manufacturers, has secured an option on approximately 1,000 acres of clay land a short distance northwest of Montgomery, Mo. If the clay meets the required test the Pennsylvania concern will erect a fire-brick plant there, it is reported.

PLAN TO DOUBLE CAPACITY

Completion of the new dryer at the plant of the Superior Brick Co., Cleveland, O., has been made, and plans for doubling the capacity of output of common brick, beginning about December 1, likewise are coming to a head. It is expected that the production will then be about 100,000 brick a day. At that, in the opinion of J. F. Aten, Jr., production manager, there will hardly be sufficient material to meet the demand, since the open winter so far has made for much more than the usual amount of construction.

The Smokeless Kiln Burner No. 8

A successful burner on all types of kilns



28 Chamber Haigh Kiln

THE SMOKELESS OIL BURNER CO.
BUCYRUS OHIO

TANKS PUMPS METERS STRAINERS

A Saving That Deserves Your Consideration

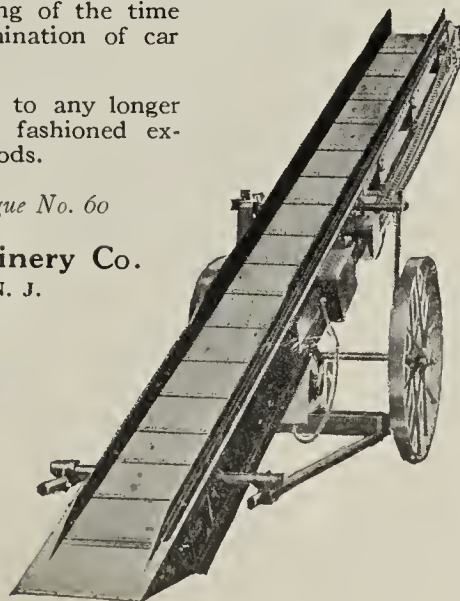
27 cents saved on every ton of coal used—that's what it means to unload cars with a Scoop Conveyor.

These are actual figures obtained from users. If you burn a thousand ton a year it means almost \$300, to say nothing of the time saved and the elimination of car demurrage.

Can you afford to any longer continue with old fashioned expensive hand methods.

Ask for Catalogue No. 60

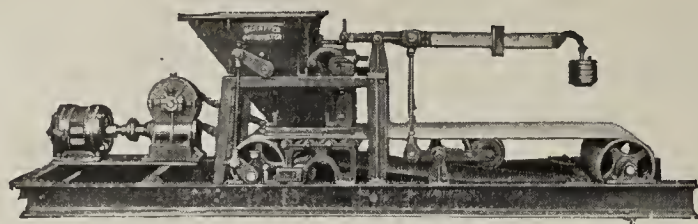
Portable Machinery Co.
PASSAIC, N. J.



UNLOADING	
Without	With
50 tons .Quan. .50 tons	
5 Men 2	
9 hr. Time 3 hr.	
35c . Hourly Wage . 35c	
\$15.75 Unl'd C'st \$2.10	
31 1/2c . Cost per ton . 4.2c	
Save per ton. . 27.3c	

Figures courtesy of
Ochs & Frey BRICK
Co., Allentown, Pa.

THE SCOOP CONVEYOR



LABOR SHORTAGE!

WHAT WILL IT DO TO YOUR BUSINESS?

The day of the old unskilled labor with a pick and shovel, ready at a moment's call is gone. Every job in the future will require more machines and fewer men if the work is to be done at a price commensurate with buying power.

The Poidometer will replace your pug mill man—eliminate him entirely—and mix and temper your clay more accurately and with unequalled speed.

*Our engineering staff
explain in detail.*

SCHAFER ENGINEERING and EQUIPMENT COMPANY

2828 Smallman Street

Pittsburgh, Pa.



239



CENTRAL OHIO PLANTS BUSY

With good weather conditions prevailing there is still a good steady demand for brick and other clay products in Columbus and Central Ohio territory. Face brick are still selling well and there is a good demand for common brick as well as building tile, fireproofing, fire brick and drain tile. The activity in building is not lessening to any extent as there has been no inclement weather to stop operations. Home building is still one of the big features of the building boom.

CANTON COMPANY TO OPERATE ALL YEAR

The Canton (Ohio) Brick & Fireproofing Co.'s plant will operate all winter at 40,000 daily output, it was announced recently by officials of the concern. Contemplated building in the Akron district gives officials hope for continued heavy business in common and face brick. Until just recently the plant had been producing 50,000 brick a day. The coal situation has eased and shipments are being received regularly, officials said. Prices have been firm for several weeks, and there is no indication of a price advance until after the first of the year at least.

CAN'T GET PAVING BRICK TO JOBS

Quite a few paving jobs in Ohio and in adjoining States which are depending on Ohio manufacturers for their pavers will not be finished this season owing to inability to get sufficient cars to ship the brick to the job. This situation has existed for some time but since winter is close at hand it is now known that quite a few such jobs will have to lay over until next year. Embargoes and car shortage have played havoc with the paving brick industry during the past few months and there has been only a slight improvement recently.

BUILDS HOUSES FOR EMPLOYEES

The Robinson Clay Products Co. of Akron, Ohio, large manufacturer of sewer pipe, has built houses for its employes at all its plants. Wherever there are sufficient colored men to justify it, the company also built churches and engaged preachers for that race. The company has gone to this expense to stabilize the supply of labor and keep its men well satisfied, knowing that the quantity and quality of the product is improved thereby. Records show that the majority of the men have been with the company for a long time, some for 25 years and many for 10 and 15 years. Approximately one-half of the men at the plants of this company live in company houses.

REJECT MANY ROAD BOND ISSUES

A resume of the result of votes on special bond issues, in Ohio, on November 7 for road construction shows that the majority that were up for approval were lost, altho quite a few important issues were carried. The result shows that Coshocton County approved a special levy of two mills which will yield \$266,400; Cuyahoga County approved a special levy of one-fourth mill which will yield \$1,080,000; Scioto County approved a levy of two mills which will yield \$852,500, while Wayne County approved a levy of 1½ mills which will yield \$667,000. Propositions in various counties calculated to yield \$4,806,100 were lost.

GIVES BRICKLAYER STUDENTS PRIZES

Prizes for unusual accomplishment in their work in the new Bricklayers School, Cleveland, Ohio, have been awarded to 14 of the 165 students by the Cleveland Builders Supply & Brick Co. First prize was awarded to Elmer H. Horstman, a complete set of bricklayers' tools and a sack to carry them in. W. R. Hoagland and A. J. Salter won smaller outfits, and the others received honorable mention and

"Tructractors save money for Brick and Clay plants



Automatic dump model Clark Tructractor carries broken tile from yards to dump—quickly and cheaply; also used to carry coal to kilns.

CLARK TRUCTRACTOR CO.

Gasoline Industrial Vehicles

1124 Days Ave.

Buchanan, Mich.

trowels. The students also were taken on a trip thru plants of the Cleveland Builders Supply & Brick Co.

The classes are under the direction of the Building Trades Employers Association and the Mason Contractors Association, represented by Otto Best, and the Bricklayers Union Local No. 5. Robert Hart, of the union, is instructor.

METROPOLITAN PLANTS ALL BUSY

Every plant of the Metropolitan Paving Brick Co. in the Canton, Ohio, district is in full operation at present and indications are that they will continue steady operation until well into the first of the year.

Lack of care is holding up shipments which road contractors need badly to finish jobs before the bad weather sets in. The future of the paving brick industry looks very bright, officials say.

Operations are on the increase at the plant of the Canton Brick and Fireproofing Company at Canton, according to J. B. Burwell, an official of the company. This firm recently took over holdings of another company there and has made extensive improvements. Business with the firm is very good, officials said, and spring business looks big.

CAR SHORTAGE STILL ACUTE

Paul B. Belden, of the Belden Brick Co., Canton, Ohio, in an interview with a representative of Brick and Clay Record said that at the present time the railroads were supplying less than 50 per cent. of the cars needed by the brick manufacturers in the Canton district and that this shortcoming was seriously handicapping the manufacturers.

Predicted brick price increases have thus far failed to materialize and prices at this writing are firm, officials of several of the leading companies of Canton stated. There is no possibility of an advance in prices before spring, an official of one of the large concerns said recently.

The coal situation has eased to such an extent that many of the plants have sufficient coal on sidings to insure operation most of the winter. Prices of coal, altho fluctuating, are giving the manufacturer little concern at this time and he is glad to get fuel at most any price.

Speaking of the labor situation, one manufacturer said that "the employment is 100 per cent." and from all indications wages now being paid are very satisfactory. Many of the plants the past several months have been idle owing to labor wage differences. Recent advances have been granted.

PLANNING 15,000,000 CAPACITY PLANT

As announced in last issue of Brick and Clay Record a new brick plant for the Cleveland (Ohio) district, and a new company to operate it, has been organized by John F. McKay, well known in the face brick branch of the industry in the Northern Ohio territory for the last 15 or more years.

The company will be known as the McKay Brick Co., with a capital stock of \$250,000. It takes over the old John Kline Brick Co.'s plant at Wickliffe, Ohio, 12 miles from the Public Square in Cleveland. The Kline establishment is one of the oldest in the territory, having started operations as far back as 1890. In its day it was noted for the high quality of sewer, paving and building brick it turned out.

Under the direction of Mr. McKay, who will be president and general manager, the new company will change over the plant and manufacture a high quality of rough texture face brick, name for which will be decided later. Both office and sales rooms will be located at the plant, since its location to the Cleveland district is so close.

Active in the production end with Mr. McKay will be William Arehart, who is looked upon as an authority on face brick production in the Cleveland section. Mr. Arehart recently completed a new \$250,000 face brick plant at Stoney Creek. He is also known for his work in connection with



Water- and steam-tight

Jenkins Standard Brass Globe Valves are equipped with Jenkins Renewable Discs. Seat is thereby saved from constant friction and abrasion, and an absolutely tight closure is made without strain on the wheel or spindle.

A metal gland compresses the asbestos packing in the stuffing box, making it tight and preventing leakage around the spindle. The valve is absolutely water- and steam-tight.

The genuine Jenkins is identified by the Jenkins Diamond and Signature—at supply houses everywhere.

JENKINS BROS.
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Montreal Boston London
Factories: Bridgeport, Conn.
Elizabeth, N. J., Montreal, Can.



Fig. 106—Standard Brass Globe Valve, Screwed.





HY-GRADE MANGANESE CO.
WOODSTOCK, VA.

Miner and Grinders

Especially Prepared for Brick Making

Safety First!



No. 305
\$4.25 per Doz.
\$48 per Gross Pair



No. 300
\$7.80 per doz.
\$90 per Gross Pair

Cuts and bruises do not come to men who wear Des Moines Gloves and Pads. Fear does not hinder their work.

To any Clay Products Manufacturer who has not been using Des Moines Hand Pads, that will clip out the handpad shown here and mail it to us on his letter head we will send free a pair of Des Moines Mittens.

DO IT TODAY.

Des Moines Glove & Manufacturing Co.
508 Fourth St., Des Moines, Ia.

"MINSTER" INDUSTRIAL LOCOMOTIVES

The most reliable and economical gasoline locomotives in service about clay plants.

Built in 2 to 8 ton capacities.

Ask about them.

THE INDUSTRIAL EQUIPMENT COMPANY
510-516 Ohio St. Minster, Ohio

Eastern and Export Department
The Herbert Crapster Co., Inc.,
1 Madison Ave., New York City



the state plant at Junction City, Ohio. Mr. McKay is best known for his connections with the Hydraulic-Press Brick Co., with which firm he was associated for 15 years.

Experts who have investigated the material that will be used in the face brick manufacture assert that it is of very high quality, while a conservative estimate places the quantity as sufficient to last for 150 years.

Plans of the new firm call for a production of 15,000,000 face brick when operations get under way.

✂ ✂ ✂

Charles Morris is making preparations for establishing a brick plant at Holdenville, Okla.

OREGON PLANT INCREASES CAPACITY

Improvements which have been made at the plant of the Oregon Face Brick Co., at Willamina, Ore., have increased the capacity of that company to more than 30,000 brick daily, a report states. This is not a new company but is the same as that formerly operated under the name of the Pacific Face Brick Co. It was opened under the new name in March, 1922.

BUILDING NEW DRYERS

H. M. & C. B. Siner, Church and Tacony Streets, Philadelphia, Pa., leading manufacturers of common brick, will soon commence the erection of a new drying shed at their Devereaux Street plant, to cost about \$8,000.

AMERICAN REFRACTORIES BUYS FARMS

Two large farms along the Pennsylvania railroad's main line, one-half mile east of Lewistown Junction, Pa., were purchased recently by the American Refractories Co., at Pittsburgh, it is stated. Just what use the company will make of the land has not yet been learned.

HAZELTON PLANT AT CAPACITY

The Hazelton (Pa.) Brick Co., is continuing operations at full capacity at its plant and expects to maintain this schedule for an indefinite period. Heavy incoming orders are being received, and large shipments are being made for eastern destinations.

"RYTT" GETS ANOTHER IDEA

Irving A. Ryttenberg, of the Sumter (S. C.) Brick Works, well known for the series of "architectural love letters" which he has composed, has again hit the bullseye in a new idea of his. In his latest letter to architects he is offering a prize of \$100 for the best letter-head design for his Airedale brick. In addition to obtaining a good and attractive letter-head, which will really be a secondary consideration, he will make the name "Airedale Brick" forever remembered by every architect who enters the competition.

That "Rytt's" campaign on architects all over the country has been successful is evidenced by the interest manifested by architects from practically every state.

✂ ✂ ✂

W. C. Craig, of Brownsville, Tex., has announced that he will build a brick manufacturing plant at Robstown, Tex.

LACK OF WATER CLOSES PLANT

After a shut-down lasting some 35 days, plant No. 3 of the Phoenix Clay Corporation, Bridgeport, Tex., again started manufacturing. The plant was compelled to close on account of lack of water, but that situation has been remedied, and the company is now operating at capacity. Demand has been so good that both plants have been hard pressed to supply enough material.

HOPE FOR ESTABLISHMENT OF BRICK PLANT

Hopes in Big Stone Gap, Va., for the establishment of a brick plant run high in the minds of those interested. If outside capital can not be interested a plan has been formulated which will make the financing of a clay plant possible with local capital. Considerable interest has been manifested in the possibilities of a plant in Big Stone Gap and many inquiries have been received by local business men. The value of the deposit is being tested and samples of the clay are being made up into brick to determine its possibilities.



George Cutbush has been appointed works manager of the Atlas Brick Co., Ltd., Milton, Ont.

ISSUE \$60,000 BONDS

Bonds to the extent of \$60,000 are being sold with a view to doubling the capacity of the plant of the Atlas Brick Co., Milton, Ont. F. W. McFarren, who is manager of the Interprovincial Brick Co., 32 Toronto St., Toronto, is also manager of the Atlas Brick Co.

SUN BRICK CO. SUSTAINS FIRE LOSS

Fire did damage to the Sun Brick Co.'s plant in the Don Valley, Toronto, to the extent of \$10,000 on November 12. The fire was confined to the producer house.

TO REBUILD BURNED PLANT

The Stephen Brick Co., Ltd., St. John, N. B., located on the Little River, has preliminary plans in progress for the rebuilding of its plant, destroyed by fire November 5, with loss estimated at \$100,000, including machinery. The plant was comparatively new, having been in operation only a few months; the equipment was of the most modern type.



DRY PRESSING REFRACTORY SHAPES

(Continued from Page 866)

repeated changes of temperature better than brick made by other processes.

7. Dry press ware is a poorer conductor of heat than other type of ware. This means that a furnace will lose less heat thru radiation.

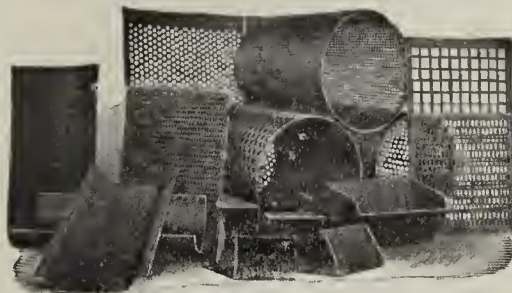
It is well known that each of the three processes now used for the manufacture of fire brick, the soft mud, stiff mud and dry press, produce brick that have special qualifications for certain purposes. The same holds true with regard to shapes. One method of manufacture is not the best for all purposes. In certain cases, handmade shapes will always be superior, but in many others the dry press method can produce better ware. Refractory manufacturers, therefore, should investigate thoroly the use of their clay for making large sizes and shapes by this latter improved method, in order to give their customers the very best service possible, and at the same time reduce their costs.



ARC REGULATION IN ELECTRIC FURNACES

In any furnace where two or more electrodes are used, one of the main problems in operation is the proper regulation of the electrodes, says a bulletin of the U. S. Bureau of Mines. There are now available on the market a number of automatic control systems which, when functioning properly, give excellent regulation and an even, well-balanced load. These automatic regulators are expensive, however, and for small furnaces are often cumbersome and impractical, so that a

HENDRICK SCREENS FOR ALL PURPOSES



**ELEVATOR BUCKETS
CONVEYOR TROUGH and FLIGHTS
STACKS, TANKS,
GENERAL SHEET and
LIGHT STRUCTURAL WORK
LIGHT AND HEAVY STEEL
PLATE CONSTRUCTION**

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DIESEL ENGINES FOR CLAY PLANTS

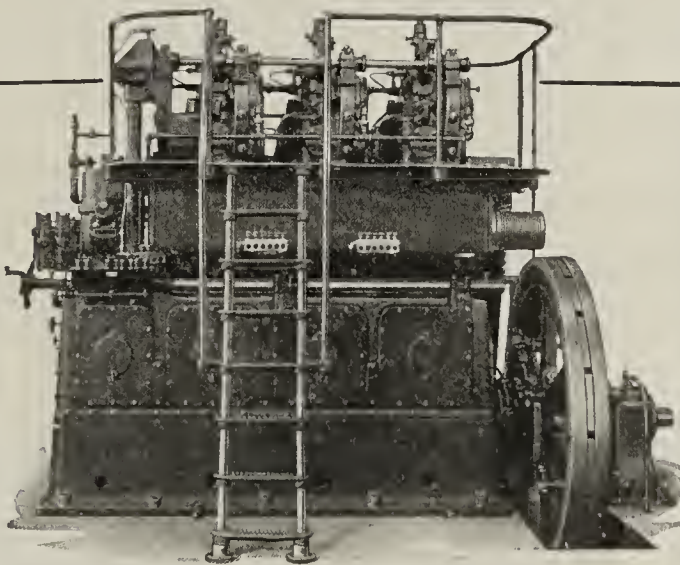
Economical Power—Efficient Operation—Convenient—Conservative—Complete—Easy to care for—Always ready and reliable.

This engine operates on cheap fuel oil. Fuel storage space decreased. A small amount of fuel makes a big amount of power.

*Send for new catalog, either vertical
or horizontal types furnished.*

**THE HADFIELD-PENFIELD STEEL COMPANY
Bucyrus Ohio**

Formerly the American Clay Machy. Co.



Clay of High Value

in territory just 40 miles from

Pittsburgh

This is an ideal location to build that new plant. It is along the P. L. & W. R. which connects with both the Pennsylvania and Erie Systems.

Read the analysis:

Coal—No. 6	Clay—No. 3
Water.....2.200	Silica.....59.84
Volatile Matter.....35.540	Alumina.....25.96
Fixed Carbon.....54.705	Iron Oxide.....1.68
Sulphur.....1.725	Titanium Oxide.....1.60
Ash.....5.830	Magnesium Oxide.....1.08
	Sulphuric Anhy- dride.....Trace
	Alkali Oxides.....1.22
	Fusion Point.....3020° F.

Be sure and get full particulars in regard to the rich land if you contemplate building a new plant.

Write today

The Pittsburgh, Lisbon & Western R. R. Co.
Lisbon, - - - - - Ohio

In Making Your Plans for Plant Betterment—

take full advantage of the immense possibilities for increasing production and reducing costs which result from the adoption of the Electric drive. Our generators and motors have an excellent reputation for successful operation under the most severe conditions encountered in the Brick and Clay Industries.

Send for list of satisfied users.

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ERIE PENNSYLVANIA

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NEW YORK CLEVELAND PHILADELPHIA
PITTSBURGH DETROIT BUFFALO

Sales Agencies

CINCINNATI: UNDERWOOD ELECTRIC CO.
KANSAS CITY: W. T. OSBORN

large proportion of the furnaces are and probably will continue to be hand-operated.

The principal objects of regulation are to maintain the correct power input, and to prevent surges and large fluctuations in the power. In furnaces depending on hand control, the operator regulates the power by observing ammeters or wattmeters placed within his line of vision from the controls, and moving the electrodes up or down accordingly. On the whole the prevention of fluctuations is done more out of consideration for the power plant than for the furnace itself. However, there is another phase of regulation, not so often mentioned, which is of greater importance to the melter in the proper operation of the furnace, namely, keeping equal arcs on the various electrodes. Details of experiments regarding arc regulation in electric furnaces and pilot light control are contained in Serial 2411, by C. E. Sims, electrometallurgist, which may be obtained from the Bureau of Mines, Washington, D. C.

* * *

THE BUILDING SITUATION

(Continued from Page 872)

New Jersey

With the winter season in New Jersey now well advanced, there is no definite tendency towards industrial building, and work of this character will unquestionably be held over until spring. Newark is holding at \$4,000,000 to \$5,000,000, gross, for the November period, just closed, according to advance figures. Trenton and Atlantic City add \$1,300,000 more to New Jersey's total.

Labor is still scarce in the brick plants, as well as other lines of burned clay production in New Jersey, and attractive figures are being offered to desirable men. The same holds true of skilled labor in the state building trades, and where cost is no material object, bricklayers are receiving \$14 and \$15 a day. Clay miners in the Raritan River section report a very unsatisfactory condition with common labor, and really good men cannot be secured, even tho 40 cents and upwards per hour is offered.

Philadelphia

The local building bureau shows a total of \$11,416,730 in estimated cost of work, for 1,088 permits, as compared with \$9,876,025 for the preceding month of October. The eleven months of the year has rounded out an aggregate of \$106,913,680, for 13,719 permits, an increase of 1,747 permits over the same period of 1921, and \$67,443,355 in estimated cost of operations. During November, work was commenced on no less than 460 dwellings, by far the majority of brick, with stated cost of \$3,379,050. Since the first of the year, an investment of \$50,354,000 has been made in new residences in Philadelphia.

Contractors and employers of skilled labor in the building industry at Philadelphia, have signed a 17-months' agreement with the bricklayers on a basis of \$1.37½ per hour, or \$11 a day for an eight-hour day. This is the first recognized contract made since May, 1920, when the men went out for higher wages, then receiving \$1.25 an hour, or \$10 a day. Since this time, they have been working without an agreement.

Baltimore

Construction operations at Baltimore, Md., show no signs of slackening. Each week is rounding out a total of from \$700,000 to \$900,000 in the valuation of building permits and is expected to maintain close to this figure thru the winter period. The city is advancing industrially in a strong manner, and during the month of October, new enterprises of this character to an amount of indicated investment of

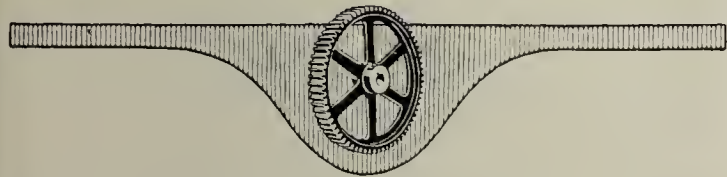
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SMOOTH running; correct in design, accurate and true to pitch, Caldwell gears are bound to please you. We make all types—machine-molded, cut tooth, mortise gears, worm gears, etc. Caldwell Promptness is Traditional. It is at your service. Our stocks assure prompt shipment.

Let us figure with you next time you are in the market.

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CALDWELL



Increase the value of your product by improving
the color with

LAVINO BRAZILIAN MANGANESE

"Best for Face Brick"

Economical

Adaptable to any Clay

Intense Staining Powers

Various Effects Obtainable

Uniform Analytically and Physically

Liberal samples and full information
gladly furnished upon request.

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Bullitt Building Philadelphia, Pa.

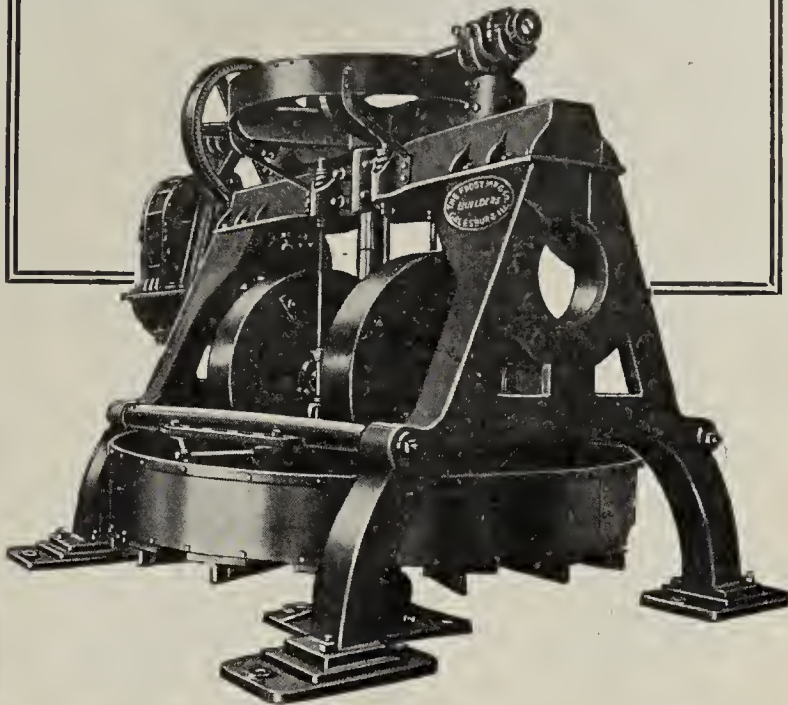
Grinding Plant: Plymouth Meeting, Pa.

BETTER QUALITY WARE

That is the result when Frost
Dry Pans are put on the job.

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QUALITY ECONOMY SERVICE

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FUEL OIL BURNERS

will burn any grade of fuel oil, producing greater and quicker heat with safety and perfect flame control. Non-clogging. Assures increased output of ware—reduction of burning time—and cut in costs.

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PLANT BETTERMENT Follows The TAPALOG

It acts as a guide to your firemen, accurately recording the time temperatures day and night, which means getting Better Ware at Lower Fuel Costs.

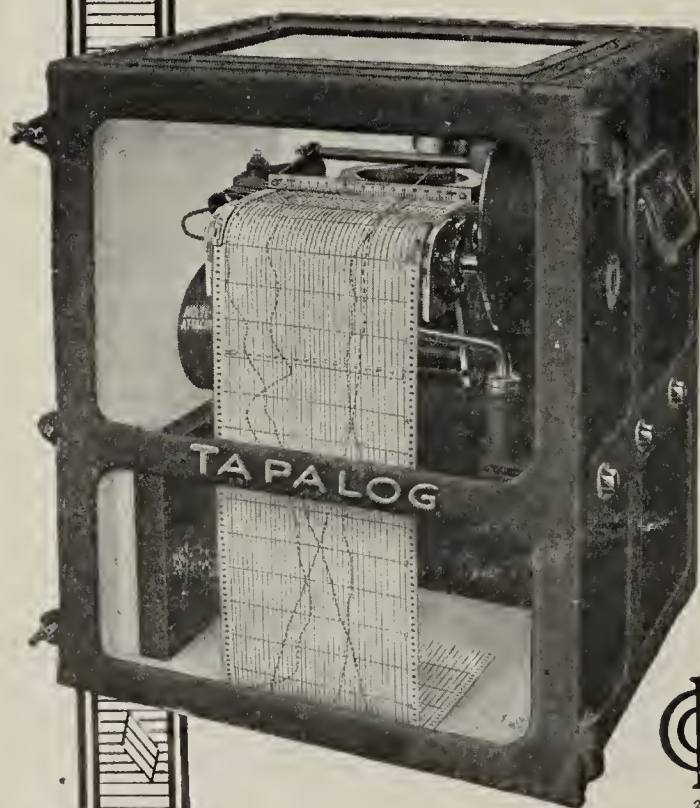
WILSON-MAEULEN PYROMETER EQUIPMENT

has been installed in some of the largest plants in the country. Here are some of them:

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Ohio Valley Clay Co.
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Let us show YOU how WILSON-MAEULEN equipment will fit in your Plant Betterment. A postal card will get complete information.

WILSON-MAEULEN CO.
738 E. 143rd St. New York City



\$4,000,000 were established or placed in process of locating on local sites.

Chicago

While the building totals for Chicago reached the sum of only \$12,263,000 in September this year the November totals show the astounding amount of \$20,443,000, an increase of more than \$8,000,000. This amount was made up of 1,131 permits for all classes of construction. The November total brings that of the year to nearly \$192,000,000. The permits for residential purposes, it is estimated, will provide 22,596 new homes when all buildings included in the permits are finished.

The November total is approximately \$5,000,000 more than that of the previous month. This fact is all the more remarkable when it is realized that construction at this time usually shows a considerable seasonal slump.

St. Louis

St. Louis building permits for the first 11 months of 1922 total \$22,868,632, the highest for 16 years. The total also exceeds the year mark since 1909 when \$23,733,272 in permits was taken out in 12 months. The average for 11 months for the eight years from 1914 to 1921 was \$13,957,634 and for the eight years, 1904 to 1913, inclusive, was \$20,848,222. In November 635 permits for new work costing \$2,601,930 and 451 for alterations costing \$248,850 were issued. In the same month last year permits totaled but \$975,125. The November total includes: 76 brick dwellings, \$325,450; 69 apartments and flats, \$836,700; 12 stores, \$86,700; three office buildings, \$14,500; 15 factories and workshops, \$402,150; two schools, \$524,545; 59 stables and garages, \$110,280; eight warehouses, \$140,000; 40 frame dwellings \$80,725; 348 miscellaneous permits, \$63,380.

Louisville

Brick men call attention to the fact that building permits in November ran over \$1,300,000 in Louisville, Ky., a record for so late in the year, while total building operations on which permits have been let are approximately \$15,000,000, with indications of at least \$3,000,000 more being let in December, when at least two big permits are expected to be given the final O. K. The outlook for 1923 is equally as good, if not better. At any rate the carry over in business from 1921 was nothing like that from 1922 will be, with the result that 1923 opens active, while 1922 was largely a question of how much proposed business would develop.

Atlanta

Building construction continues at a high point at Atlanta, Ga., with no indications of slackening. In the past few weeks, contracts have been awarded for new apartments to cost in excess of \$1,000,000, while smaller operations also involve a large collective sum. Building materials are growing scarce, and brick of desirable quality is especially hard to secure at the present time.

Dallas

Operations at Dallas, Tex., during 1922 are expected to round out a sum of \$20,000,000, according to the local building department. Up to the present time, work for more than \$18,000,000 has been slated, bringing an average of about \$1,500,000 monthly thruout the year. The majority of new building is centered in apartments and dwellings.

GOOD ROADS SHOW IN JANUARY

The official program of the Thirtieth American Good Roads Congress, which will be held under the auspices of the American Road Builders' Association at the Congress Hotel, Chicago, January 16 to 19, 1923, has been announced. Many interesting topics are scheduled and the meeting promises to be highly successful.

"HURRICANE" DRYERS



TUNNEL DRYER FOR INSULATORS

Reduce Your Drying Costs

One concern **cut their drying time from 10 days to 2 days.** Another concern **cut 50 to 75 per cent** of their sagger costs. If you have a drying problem, our engineers may be able to solve it.

"Hurricane" Dryers are constructed and equipped to reduce steam, labor and power consumption, and turn out the best grade of finished ware. Where our standard machines will not meet requirements, we are prepared to submit plans of specially designed apparatus.

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Automatic Mangles
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3351 Stokley St. Philadelphia, Pa.

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Always on the Job

GREEN DUCK BELTING will give you continuous service day in and day out. No expensive delays for repairs or for taking up stretch. Wears like iron in the grit and dust of clay plants. Oil, water or hard work does not affect it. Only the best grade of duck is used.

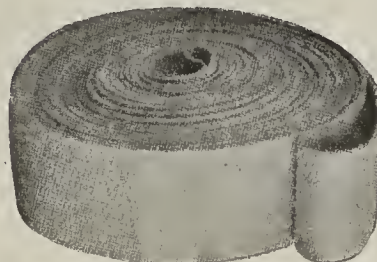
Tell our Engineering Department your requirement. They will see that you get a sample of the right width and ply belt, as well as complete estimate.

No Obligation.

Write to-day.

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Details Concerning New Models, Changes in Personnel, News Matters, etc., That Our Advertisers Believe Will Interest Our Readers

IMPROVE PLANT TO TAKE BETTER CARE OF CUSTOMERS

In keeping with the "Pay No Dividends in 1922" policy and Plant Betterment Campaign, it is interesting to note that this slogan has also taken root in some of the manufacturers of clay plant material and equipment. The National Paint & Manganese Co., of Lynchburg, Va., an old and reliable firm whose name is well known to most clay products manufacturers thruout America and Canada, has been making additions and improvements all the year, having installed the latest and most improved type of screening, elevating and conveying equipment at its plant. They are now in better shape than ever before to take care of the requirements of their customers for manganese oxides. Some of the best known face brick manufacturers in America have used this company's product for twenty years.



REST YOUR WEARY EARS

A noiseless gear drive would prove a boon to many clay products manufacturers, as noise in the grinding and machine rooms has seemed to be inherently necessary. Two booklets just issued by the R. D. Nuttall Co. of Pittsburgh, will, therefore, prove very interesting to the industry. Booklet No. 34 explains the advantages of Nuttall Industrial Helical Gears and Booklet No. 36 treats of the Proportion of Industrial Gears.

The advantages to be gained by Nuttall Helical Gears can be explained best by quoting from Booklet No. 34: "Noise is always nerve racking and clearly indicates vibration. Vibration is principally responsible for the wear and tear on gears and machinery. Due to the tooth form of Nuttall Helical Gears (which have a greater percentage of rolling action than ordinary spur gears), and the slight angle of the teeth, the load is transferred from the pinion teeth to the



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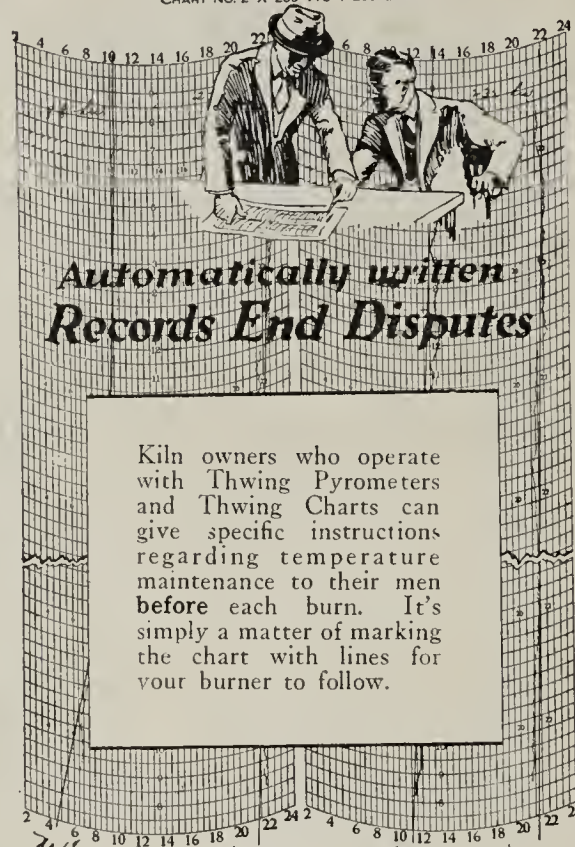


CHART No. 2-X-209 A 5 F 200-2400



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Kiln owners who operate with Thwing Pyrometers and Thwing Charts can give specific instructions regarding temperature maintenance to their men before each burn. It's simply a matter of marking the chart with lines for your burner to follow.


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The Record of Each Burn is a Check on Your Burner's Efficiency

It shows at a glance, leaving no room for argument, whether instructions are followed. As a record for future work it provides an ever-ready reference chart on which to base other operations.

These advantages and the fact that it assures maintenance of uniform temperatures make the Thwing Pyrometer an investment in economical production.



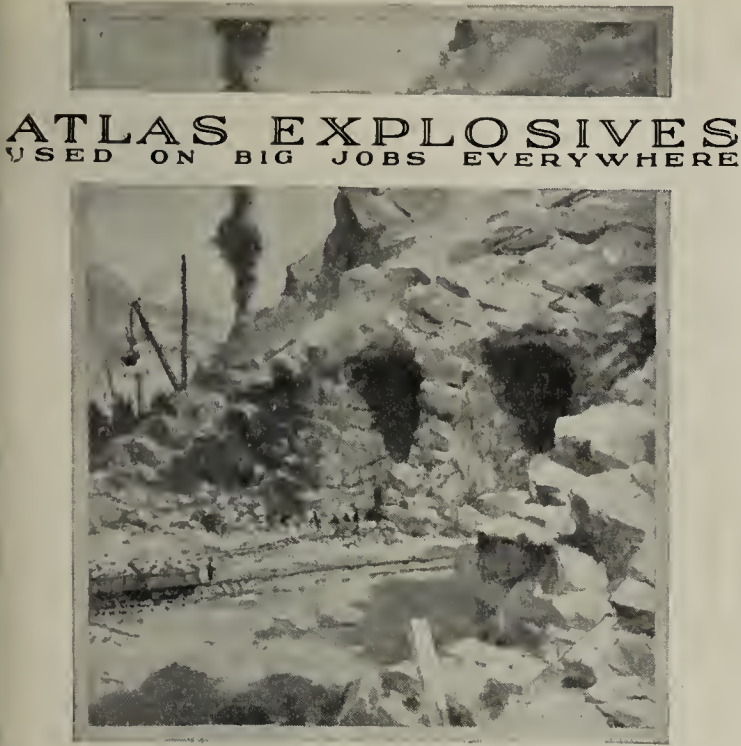
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Thwing

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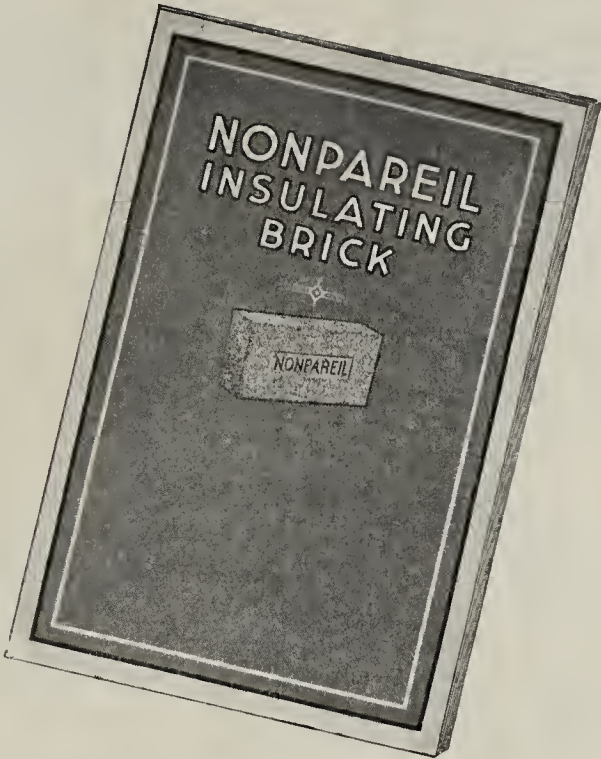
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For Kiln Insulation

See Page 44

SEND in the coupon at the bottom of this column and you will receive, free of charge, the 72-page book, "Nonpareil Insulating Brick."

Read the first 18 pages for a general explanation of insulation and then turn to page 44, the section on kiln insulation. There is something specific—the economies of insulation in your own industry. Losses are calculated from actual operation data. Specifications and diagrams show exactly how Nonpareil Brick are built into kiln construction. And the saving is demonstrated in figures that convince because they deal with familiar conditions.

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gear teeth progressively and gradually without shock, regardless of how badly they are worn. They do not drive by a series of impacts as is the case where an ordinary spur pinion drives a spur gear. The wear being uniform permits the application of a new pinion to a worn gear with the most satisfactory results.

The meshing of the Helical Gear and pinion is similar to the meshing of the threads of a bolt into a nut, and similarly the power is transmitted in a steady flow instead of innumerable vibratory impulses; consequently, gear vibration and noise are practically eliminated."

These few words explain most of the gear troubles found in a clay products plant. The use of Helical Gears spells longer life, reduced costs and a larger production.



LOMBARD EXCAVATOR IS SUCCESSFUL

A type of excavator is in use in several plants in Georgia that has proven very successful. This excavator is built somewhat like a crane with a long boom extending outward in front of the machine. Cables are provided for raising and lowering this boom, and from its end a drag-bucket is hung. A cable is also provided for pulling this bucket toward the machine.

There are several advantages gained by the use of this equipment. The cost of operation is exceptionally low, amounting to about twelve cents per thousand, including the labor of two men and all fuel, oil, waste and repairs. The machine works on top of the deposit. This obviates any trouble with water either for the excavator or for the locomotives, teams or cars for hauling the clay to the plant. Moreover, if there happens to be any patch of inferior clay in the bottom of the deposit, the machine can be operated so as to skip over the top of this second-grade clay, without trouble.

Another advantage is that this machine scrapes up and mixes every part of the deposit, thus obtaining a uniform, homogeneous mixture, which reduces the breakage and increases the quality of the ware.

The boom of this machine can be swung thru a half circle, and the entire machine is moved along the bank as the work progresses. The clay car track, being on top of the ground, requires less care and upkeep, and also reduces the power needed to pull the loaded cars to the plant.

This machine, which is made by the Lombard Iron Works and Supply Co., Augusta, Ga., while especially suited to dig surface clay, soft shale, or any hard material which has been blasted, can be used very successfully also for stripping operations.



AUDIOPHONE PERFECTED BY BRISTOL ENGINEERS

For more than six years, work on "Sound Reproduction" in the laboratories of The Bristol Company, of Waterbury, Conn., has been carried on, with the result that the New Bristol Audiophone Loud Speaker for use in conjunction with the radio, has recently been placed on the market. The fast-growing army of radio fans—which, no doubt, includes many clay plant operators—will be interested in learning that this Audiophone requires no batteries or other accessories, needing only to be connected with the receiving set by means of wire leads. If these leads are of sufficient length, the Audiophone can be carried as easily as a portable lamp, since it weighs approximately ten pounds.

The Bristol Company manufacture a similar device for the reproducing of phonograph records and for speakers. This device has been received with great favor for dance music, and for use in the home, club house, school, hotel, theater, etc., especially since it can be instantly attached to any phonograph without mutilating or in any way changing the original instrument.

Attractive circulars describing these outfits have been issued, and will be mailed to all who make request to The Bristol Company.



The Fairfield Engineering Co., at Lancaster, Ohio, who recently suffered loss by fire, are erecting a new plant on the Erie and Big Four Railroads at Marion, Ohio. The building will be 90 x 240 feet long, and will be modern in every respect, being constructed of steel frame work with side walls of steel sash and brick. They anticipate that they will be able to start operations in the new plant the latter part of March or the first of April, and that their production will be increased about 100 per cent., owing to the improved facilities for manufacturing and shipping.

In the meantime, customers are being taken care of from the temporary quarters arranged at Lancaster.

Leading Clay Journal of the World.

BRICK *and* CLAY RECORD

Established 1892. Now in its thirtieth year.

Entered as Second Class Matter January 2, 1911, at the Post Office,
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Subscriptions: One Year (26 Numbers), United States, \$3.00;
Foreign, \$4.00; Single Copies, 25 Cents.

Published Every Other Tuesday by
Industrial Publications, Inc., 407 S. Dearborn St., Chicago.
Telephone Harrison 9462

NEW YORK

CLEVELAND

KANSAS CITY

December 26, 1922

Vol. 61, No. 13

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FOR A LONG TIME we have been looking for the right man to handle in the columns of Brick and Clay Record the subject of accounting in a manner that would meet the highly diversified interests of our readers. It has been our opinion for some time, that a system of simplified accounting ought to be practical—one that would have basic elements adaptable to all classes of clay ware manufacture and all sizes of plants—a system that would be as comprehensive as a plant desired but not so involved that it necessitated continual expert counsel with an accompanying great expense for every new problem that came up or a system that would be too costly to maintain. We were told that this was impracticable.

We have, however, met a man who said it can be done. Our faith in his ability is of such magnitude that we have arranged with him for the publication of a series of articles on simplified accounting such as will meet the above specifications. He is not new in the industry nor to the readers of Brick and Clay Record. Having been connected with a clay plant he has the inside point of view and is, therefore, able to speak in the brick man's language. The person to whom we refer is G. W. Greenwood.

Mr. Greenwood graduated from Oxford University, England, with a First Class in their Honor School of Mathematics. Later, he received an M. A. Degree. For one-half dozen years following graduation, he was in charge of college courses in mathematics and astronomy. He has made frequent contributions to mathematical journals and sent solutions to problems which were characterized by their originality and simplicity. He later became affiliated with a clay products company filling successively positions as auditor, secretary, treasurer and manager. During this period he was a regular contributor to trade and engineering magazines dealing with better accounting methods and cost records.

At the present time, Mr. Greenwood is giving all of his time to accounting, specializing in simplified systems such as those to be described in the forthcoming series of articles which will appear in Brick and Clay Record.

This series of articles will probably start in the next issue of Brick and Clay Record and the principles are applicable to every plant in the country, no matter how large or small and for manufacturing any product. They will show you how to install a system that will cut down your work a great deal, save you money, and give you the information you should have.

✻ ✻ ✻

In its January 23 issue, Brick and Clay Record proposes to publish a very excellent and complete cost system which is at the present time being used on a large and modern Illinois hollow tile plant. It is a system that has been evolved after considerable study and which requires a surprising minimum of time and cost for maintaining. This system gives at once the costs of the plant and gives the concern information that very few systems now in use on clay plants are capable of furnishing.

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What and Where to Buy

A classified list for the convenience of readers of machinery, equipment and supplies used in the manufacture of clay products. Index to advertisements will give you page number of any advertiser, and by referring to advertisement you can get full particulars about products and addresses. If you don't find what you want, write us and we will tell you where to get it.

Air Receivers. Frost Manufacturing Co.	Link-Belt Company. Manufacturers Equipment Co. New York Belting and Packing Co.	Cars. Atlas Car & Mfg. Co. Chase Fdry. & Mfg. Co. Clark Tractor Co. Fate-Root-Heath Co. Hadfield-Penfield Steel Co. Hendrick Manufacturing Co. International Clay Mch. Co. Lancaster Iron Works, Inc. Manufacturers Equipment Co. Robinson, Frank H. Steele & Sons, J. C.	Clay Screens. Harrington & King Perf. Co. Hendrick Mfg. Co. Louisville Machine Mfg. Co. Manufacturers Equipment Co. Robinson, Frank H. Tyler Co., W. S.	Toronto Fdry. & Mach. Co. Webster Mfg. Co. Williams Patent Crusher and Pulv. Co.	Doors and Frames. Manufacturers Equipment Co.
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Link-Belt Company.
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Thew Shovel Co.

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Bay City Dredge Works.
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Bucyrus Company.
Erie Steam Shovel Co.
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Dodge Sales & Eng. Co.
Link-Belt Company.
Morse Chain Co.
Nuttall Co., R. D.
Webster Mfg. Co.

Gloves.

Des Moines Glove & Mfg. Co.

Granulators.

Bonnot Co.
Chambers Bros. Co.
Fate-Root-Heath Co.
Freese & Co., E. M.
Hadfield-Penfield Steel Co.
International Clay Mch. Co.
Lancaster Iron Works, Inc.
Manufacturers Equipment Co.
Steele & Sons, J. C.
Toronto Fdry. & Mach. Co.

Grates and Grate Bars.

Canton Grate Co.
Crossley Machine Co.
Electric Steel Castings Co.
Frost Manufacturing Co.
Hadfield-Penfield Steel Co.
International Clay Mch. Co.
Lancaster Iron Works, Inc.
Manufacturers Equipment Co.
Marion Macb., Fdy. & S. Co.
Robinson, Frank H.
Toronto Fdry. & Mach. Co.

Gravity Carriers.

Matbewe Gravity Carrier Co.

Heat Insulation.

Armstrong Cork & Insulation Co.
Celite Products Co.

Heat Treating Furnaces.

Brown Instrument Co.

Hoists.

Bonnot Co.
Chambers Bros. Co.
Fate-Root-Heath Co.
Hadfield-Penfield Steel Co.
International Clay Mch. Co.
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Link-Belt Company.
Louisville Machine Mfg. Co.
Manufacturers Equipment Co.

Hollow Brick Machinery.

Bonnot Co.
Chambers Bros. Co.
Fate-Root-Heath Co.
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International Clay Mch. Co.
Manufacturers Equipment Co.
Robinson, Frank H.
Steele & Sons, J. C.
Stevenson Co.

Hose.

New York Belting and Packing Co.
Quaker City Rubber Co.

Hydrometers or Moisture Indicators.

Lancaster Iron Works, Inc.
Manufacturers Equipment Co.

Instruments, Scientific.

Brown Instrument Co.

Insulating Materials (Heat).

Armstrong Cork & Insulation Co.
Celite Products Co.

Kilns.

American Dressler Tunnel Kilns, Inc.
Chambers Bros. Co.
Fate-Root-Heath Co.
Hadfield-Penfield Steel Co.
International Clay Mch. Co.
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Minter System.
Schaffer Eng. & Equip. Co.

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International Clay Mch. Co.
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Manufacturers Equipment Co.
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Kiln Bandings.

International Clay Mach. Co.
Robinson, Frank H.

Kiln Doors and Frames.

Manufacturers Equipment Co.

Kiln Expert.

Haigh, L.

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Armstrong Cork & Insulation Co.
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Loaders (Wagon and Truck).

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Portable Machinery Co.
Sunbury Mfg. Co.

Locomotives.

Atlas Car & Mfg. Co.
Brookville Truck & Tractor Co.
Davenport Locomotive Works.
Fate-Root-Heath Co.
Goodman Mfg. Co.
Hadfield-Penfield Steel Co.
Industrial Equipment Co.
Whitcomb Co., Geo. D.

Locomotive Cranes.

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Bucyrus Company.
Erie Steam Shovel Co.
Link-Belt Company.

Machinery, Trans'n (Power).

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Hy-Grade Manganese Co.
Lavino & Co.
National Paint and Manganese Co.

Mangles.

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Proctor & Schwartz.

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International Clay Mach. Co.
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Mold Sanders.

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International Clay Mch. Co.
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Cole Motor Car Co.

Motors—Electric.

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Westinghouse Electric & Mfg. Co.

Oil Burners.

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Lancaster Iron Works, Inc.
Smokeless Oil Burner Co.

Oil Burning Systems.

Foerst and Sons, John.
Hopkin & Co., C. A.

Optical Pyrometers.

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Packings and Mechanical Rubber Goods.

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Quaker City Rubber Co.

Paints (Mineral).

Hy-Grade Manganese Co.

Pallets and Trays.

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Harrington & King Perforating Co.
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Poidometer.

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Portable Conveyors.

Portable Machinery Co.

Portable Track.

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Erie Steam Shovel Co.

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To Clay Products Manufacturers:

A lot of you fellows have been misunderstanding the spirit of our requests in the last few issues of Brick and Clay Record, asking for your participation in a slogan contest.

Our idea is not to secure a catch phrase or epitome befitting the position of the products of the clay industry in our national life.—Goodness knows that such a slogan would be well worth having; but this time we are only seeking a phrase that would be descriptive of the place Brick and Clay Record occupies in its industry—as a leader of thought, a champion of worthwhile causes, a promoter of greater development, a well of information from which manufacturers all over the world have drawn ideas to solve their problems.

A number of the numerous contributors, many of whom are leaders in their respective industries and well known to readers of Brick and Clay Record, have expressed this thought in their letters accompanying their slogans: "I have gotten a lot of interesting and instructive information from your journal thru my many years' reading, some of which was worth

hundreds of dollars to me. I therefore feel that I am in only a small measure, reciprocating for this aid by sending you slogans. I have had some fun out of composing them, even tho my contributions are very mediocre."

No man is a fair judge of his ability, so these modest gentlemen who express themselves as above might be very pleasantly surprised when the prizes are awarded. If you feel in a similar spirit, the following information may be useful to you: Three prizes, \$100, \$50, and \$25, and five prizes of \$5 each will be given to the writers of the best slogans. There are no conditions of any kind; you may send as many slogans as you wish.

The judges of the contest are the secretaries of the various national trade associations: F. W. Donahoe, E. E. Duff, R. D. T. Hollowell, Geo. C. D. Lenth, J. S. Sleeper, Ralph P. Stoddard, and Brick and Clay Record.

The contest closes on January 20, and announcement of the winners will be made in the February 6 issue of Brick and Clay Record.

Send in a slogan of a few pithy words, expressing your idea of the standing and position held by Brick and Clay Record among its readers. Send your name, address, slogan and a short explanation of your reason for picking it immediately to:

Slogan Editor

Brick and Clay Record

407 S. Dearborn St., Chicago, Ill.

The Leading Clay Journal of the World

BRICK AND CLAY RECORD

(The Slogan Selected Will Appear Here)

(The opinion of our readers, expressing the purpose and spirit of this publication)

Starting 1923 Right!

PRACTICALLY the entire clay products industry is in accord as to the prospects for 1923. Manufacturers of refractories, face, common and paving brick, hollow tile, sewer pipe and drain tile look with equal faith towards 1923 as a year of great promise.

In general, the year 1922 was a good one. It started out very slowly but business increased in momentum as the year progressed. The chief impediments were: A severe coal strike, car shortages, labor shortage, and in those industries interested in building construction there was a serious shortage of bricklayers and other building tradesmen. But despite these difficulties a production figure approaching the best previous annual figure, has been reached by all, and in some of the industries we predict it has reached a tonnage greater in 1922 than ever before.

As 1923 unfolds itself, it is only natural to desire to focus the microscope upon the year's prospects not merely superficially, but to scrutinize and examine them to see what may be expected with some degree of certainty.

Problems Ahead

One does not have to study long to be able to predict a recurrence of some of the same difficulties that popped up this year. A labor shortage, perhaps even more acute than that experienced in 1922, is destined to come. Bricklayers will continue to be scarce. Farther in the year car shortages should practically disappear because new rolling stock ordered by the railroads in 1922 will be placed into commission.

What will happen with regard to coal supply is of course very problematical. Right now the prospect of another strike is not at all a remote probability.

In retrospect, one should not dismiss 1922 because it is in the past and not mention the fact that notable progress in various phases of clay manufacturing had been accomplished. The research work that has been carried out by the various trade associations has

shown that even on those plants thought to be very efficient, there was opportunity for considerable reduction in burning costs.

Moreover, building code changes have been recommended by several of the trade associations, and in a good many cities the recommendations have been accepted. The effect has been a wider use of burned clay products thru eliminating certain discriminating restrictions.

Better accounting methods have been worked out and established thru association efforts in the refractories, face and common brick fields. These should put those industries on a better business basis.

All of the trade associations have prepared literature for the enlightenment of their clientele. By distributing this information to customers, the associations have performed a service for their industries. Similarly, promotional work has been carried on to a considerable degree and the wonderful business achieved this year must be at least partially credited to these efforts.

The greatest portion of the forward stride made in 1922 can be traced directly to association activity. It is the association in each division of the business that is carrying the burden of uplifting and promoting the industry. Those manufacturers who are not members of their respective trade associations would do well to reflect right here, their place in the industrial world. They are benefiting from the work for which others are paying. Their place is similar to that of an owner of property whose land lies adjacent to an improved permanent highway, but has failed to contribute to its construction, yet who has derived direct benefit in the form of enhanced land values thru the work of others.

Your Debt to Industry

"Every man owes some of his time to the up-building of the profession to which he belongs." This truth came from the lips of Theodore Roosevelt and is the gospel of true service that

every progressive and honorable man aspires to. There is still an enormous amount of latent work that remains to be done in each of the clay products industries. It will take time, effort and money to do this work. It will need the active support of every man in the industry and each manufacturer should share his just portion of the burden.

The clay products industry as nearly every other business, is dependent upon its success on the degree of proficiency it reaches in: (1) Production; (2) Accounting; (3) Distribution; (4) Collections. It is one thing to produce a product cheaply, another to dispose of it properly and still another to collect your money. Like a chair, one of whose legs is shorter, the industry or any individual plant will wobble if it is weak in one or more of the above divisions.

Brick and Clay Record is pledging to continue its efforts even more actively and on a greater scale than in the past, to aid the manufacturer in attaining greater proficiency in each of these aspects. If every manufacturer will have faith in his respective association and in his business paper, every branch of the clay products industry is bound to prosper more than ever before.

Start Right Now

Go after your coal, labor, merchandizing and other problems before they become too firmly rooted. Your success in hurdling these difficulties—your profits—will be measured by your preparation in the way of labor-saving equipment, lower coal consuming burning methods, stocking of coal, greater dealer distribution, provision for more bricklayers, and so forth.

It is up to you. You will get profits out of 1923 exactly commensurate to the degree you study trade conditions and instructive information available thru your business paper and the backing you give your trade association—in other words, what you put into the industry in the way of service. Roll up your sleeves right now and begin to delve into your 1923 problems!

Paving Brick Needs More Advertising

This Fact Was Brought Out at Convention of Paving Brick Men in Cleveland—
Greenough Outlines Comprehensive Plan

TWO OUTSTANDING matters for immediate consideration by paving brick producers were emphasized at the annual meeting of the National Paving Brick Manufacturers' Association, held in Cleveland, December 12 and 13. They were:

The need for expansion of the educational and advertising activities of the association; second, the need for continuing research and lowering production costs. The spirit of appreciation with which the association members accepted the above two points as the most important considerations of the paving brick industry today was almost unanimous.

Manufacturers from as far as Texas were present at the paving brick convention but many of the nearby producers failed to attend. The meeting, however, was enthusiastic and was marked by the initial appearance of the new secretary, E. E. Duff, Jr., and by the presentation of a beautiful and valuable watch by members of the association and executive office associates to the retiring secretary, Maurice B. Greenough.

Administration Anxious to Aid Industry

The program of the meeting was diversified as to subjects and speakers. R. M. Hudson, Assistant Chief, Bureau of Simplification, U. S. Department of Commerce, was the initial speaker whose main theme was mention of the eagerness of the present administration to aid industry not thru legislation or regulation but thru cooperation. He cited the work that has and is being done on the simplification of varieties of manufactured articles and in the gathering and dissemination of valuable statistics.

G. A. Bole, Superintendent, Ceramic Experiment Station, United States Bureau of Mines, Columbus, gave a progress report on the research work that had been conducted on various clay plants thruout the country with special reference to burning problems. The report and discussions brought out the very important point that the opportunity for cost reduction and improvement in quality of paving brick, was plainly tremendous. The importance of continuing the research work was especially emphasized.

Other features of the program included talks on a number of different subjects. The power and value of advertising was discussed by Mr. Rockwood of the Crosby-Chicago Co. The association field man from the viewpoint of the city engineer was the subject of an informal talk, by Robert Hoffman, commissioner of engineering, Cleveland.

Herrick Advocate of Good Roads

Leon C. Herrick, director of highways and public works, State of Ohio, was warmly received by the manufacturers present. He outlined the work the state was doing and proved himself an enthusiast on good road construction. Brick has received a good proportion of the road construction in the State of Ohio.

At the banquet on Tuesday evening, which also included entertainment, Geo. M. Graham, vice-president, Chandler Motor Car Co., Cleveland, was the only speaker. He stated that during the past year the value of automobile production was three times the amount of money spent on road construction. Six groups are responsible for the future development and progress of road building in this country, he said. They were described as:

1. Automobile Manufacturers.
2. Highway Financing (maintenance and original capitalization).
3. Intelligent law makers.
4. Transportation experts.
5. Real estate men.
6. Road builders, including purveyors of materials, engineers and contractors.

At the luncheon held on the first day, a novel scheme was put across by a speaker who was presented, garbed as a soap-box orator, and imitated the theme used by I. W. W. speakers in speaking to working men thruout the country. He then unmasked and answered the arguments which he had advanced during his impersonation. He represented an organization endeavoring to combat the evil influence that the soap-box orators are having upon the working men of America.



Edward E. Duff
(Left) Secretary National Paving Brick Manufacturers Association.



Maurice B. Greenough
Retiring Secretary



At this same luncheon, Mr. Greenough traced the progress of the history of the N. P. B. M. A. thru its 18 years of existence. The chairman's message of the organization meeting in February, 1905 was read in part. It stated that the purpose of the association was to stop the fighting between paving brick men and to direct this same amount of effort: in fighting for the welfare of the industry; to take a stand on the best forms of brick road construction and to do publicity work for paving brick.

Mr. Greenough then went on to state that in 1905 the yardage of concrete pavement was less than 250,000. In 1921, however, this yardage had increased to 250,000,000.

1916 was the best year in the annals of the paving brick industry. A yardage of from 11,000,000 to 12,000,000 square yards of brick road construction was laid in that year. In 1917, the yardage was practically the same. In 1918, it had been reduced some 50 per cent. and since then strenuous efforts have been made to regain the loss. In 1919 paving brick business was good. In 1920, there was a gain and in 1922 the manufacturers were just holding their own.

Situation Not Good

In the interval between 1916 and 1922, the amount of paving done nearly doubled so the manufacturers were actually steadily losing ground. Thus, the situation in reality appears in a bad light. It is true that the war was a big factor in this reduction in paving brick construction. However, if there had been no war, certain restrictions would still have existed that would have impeded the progress of the industry.

Manufacturers would have been confronted with rising fuel and labor costs; hence, higher production costs. Possibly the higher production costs would not have been as great as has been caused by the war but nevertheless it is certain that costs would have risen appreciably. It is thus vitally essential that something must be done to keep costs down.

Unless something is done, the market possibilities for paving brick will be materially decreased. Paving brick manufacturers cannot expect to go on year after year with their costs rising, expecting to increase or even keep up the present business. Costs must be reduced in order to compete with other materials that have with each year made greater inroads into the markets desired by paving brick manufacturers.

Should Increase Publicity

Thus, there are two outstanding problems for paving brick producers to take immediate action on, said Mr. Greenough. The cost of production should be decreased and the research program continued so as to aid in the obtainment of this end. Secondly, publicity work for paving brick should be expanded and stronger efforts made to capture existing and new markets.

At the business session held on Wednesday, the most important features were reports by W. P. Blair, Stanley A. Knisely and Maurice B. Greenough.

The subject of Mr. Knisely's talk was advertising and education. Mr. Knisely listed the activities in the educational division of the N. P. B. M. A. as follows: Advertising in trade papers; publishing of Dependable Highways; publishing of Dependable Highways News Service; publishing of Educational News Feature Service; and general education, which includes reports, reprints and all literature. The theme of Mr. Knisely's paper was one of expansion for all of these activities. Trade paper advertising expansion was particularly emphasized in his address.

Blair's Report

Vice-President W. P. Blair's annual report contained a wealth of valuable and interesting data which reflected a great many of the association's activities as well as interpretations of activities outside of the association that would be of interest to the manufacturers. The Bates Road Test

was taken up in Mr. Blair's report and many inconsistencies pointed out in the conduction of the experiment and in the reports of the Illinois State Highway Commission on the results they obtained.

Mr. Blair read a petition addressed to the executive committee of the American Society for Testing Materials, asking for reorganization and formation of a committee on structural burned clay products instead of the present numerous committees which not only include burned clay products but substitute materials as well. Thus cement, sand-lime and other products would not be on the same committee as any clay products.

Mr. Blair pointed out the important fact that the \$75,000,000 federal aid to the states for road building for 1923 provided for by Congress, had made provision only for road contracts but no actual appropriation for the payment of same. This matter was brought to the attention of a number of Congressmen and organizations interested in road improvements, all of whom have promised the appropriation of \$75,000,000 to rectify this oversight.

Outlines Advertising Scheme

Perhaps the most important message of the meeting was that given at its close by Maurice B. Greenough, who outlined a proposal for a comprehensive scheme of advertising in addition to the present educational campaign being conducted by the national association. Mr. Greenough's report was complete in that it showed where to get the money, how to use it and in what mediums to spend it.

He suggested that \$40,000 be raised in this special fund which is outside of the regular revenue of the association. This money is to be apportioned to the individual company's potential producing capacity, roughly figured at one cent per ton of ware.

This program would be instituted upon its acceptance by a definite proportion of the manufacturers represented in the industry.

Over 20 publications were suggested as mediums for carrying this publicity campaign. Five types of copy would be used depending upon the character of the readers of these various publications.

Mediums to Be Used

Some of the publications recommended were: American City, Architectural Record, Bus Transportation, City Manager, Cotton, Constructor, Engineering and Contracting, Engineering News-Record, Electric Railway Journal, Good Roads, Highway Engineers, Manufacturers' Record, Motor, Public Works, Railway Age, and Nation's Business. There would also be on the list student publications to the number of 26, scattered geographically, going to schools such as the following: Alabama University, Carnegie Institute of Technology, Cornell, Universities of Georgia, Illinois, Kansas, Kentucky, Michigan, Iowa, Nebraska, Ohio, Oklahoma, Pennsylvania and Wisconsin.

The \$40,000 recommended for this fund would pay for the space cost for a year in these publications, advertising Counsel fees and production costs of the advertisements. This plan has already been submitted to a large number of the paving brick manufacturers and thus far not one dissenting voice has been registered. It is felt that the future of the industry is largely dependent upon the action the entire paving brick industry will take on this subject and it is hoped and expected that every manufacturer of paving brick will join in the hearty support of this campaign which will mean better business for all of them.



Have you noticed the Slogan Contest in Brick and Clay Record? Why not send in your slogan now. Page 940 tells all about the contest.

Adams' Message to All Face Brick Men

"GENTLEMEN, I do not know exactly what to say. I thank you for the confidence that you have expressed, and I assure you I appreciate it with all my heart. As most of you know, this is not a position which I have sought, but I have been convinced by many of my friends that I might—please note the word 'might'—do certain things as well, or it may be a little better, than somebody else. It is only for the welfare of this institution that I have agreed to act as president during the coming year, and to be, as we might say, your leader.

"In this connection I wish to say that I have all these years had the utmost confidence in the saneness and ability of the face brick manufacturers of this country, and I have never lost that confidence for a moment. The fact that we have some who have fallen by the wayside, or some who have never joined us, has never discouraged me, because I believe that the time is coming when there will be practically no outsiders; that the time is coming when even the most selfish and densest of manufacturers cannot help but see that this institution is doing a good work. The road has been rocky, as you all know, but the traveling now is smooth as compared with many years past. But, in times of peace it is wise to prepare for war. There are great difficulties ahead of us; but I have faith in you, and I am going to assume that every member of this association is going to back up the association with all the power that he has, and I do not expect to be disappointed.



J. M. Adams, Iron Clay Brick Co., Columbus, Ohio, Who Gave the Inspiring Message Printed Here to the Face Brick Manufacturers Assembled in Convention at West Baden, Ind., December 5, 6 and 7, Upon His Acceptance of the Presidency of the A. F. B. A.

"This is not the work of the board of directors, or of the secretary, or of the president; it is past that; it is the work of every individual member of this organization, if we are to continue to prosper. I am not going to hesitate to call upon any one of you for service in your particular locality, and I expect that the association will receive that service.

"This is not a selfish proposition. No great enterprise has ever been accomplished by selfishness. The cornerstone of our civilization is based upon the teaching of Jesus Christ, which was unselfishness. The selfish man has never accomplished much for the world. He may accomplish something for himself and may have temporary but not permanent satisfaction or happiness, and after all, that which brings to each one of us the greatest satisfaction and the

greatest happiness is the realization that we have done something for others. I take that to be the controlling influence of you gentlemen.

"Now let this be our slogan: 'A Billion or More Before 1924.' We have 750,000,000. I went over the list this morning, and I think I know where the other 250,000,000 are. There may be in your community a manufacturer who is not with us. It is your business to see that he signs up. Some of them it is going to be difficult to sign up, but many of them will see the light. We must have this year a billion production signed up, and then we can go on as we have been going.

BURN IDEAL WALL BUILDING TO TEST EFFECT OF FIRE

A small building, constructed for the purpose, was burned at the plant of the Bureau of Standards in Washington, D. C., on November 22. The progress of the fire was watched by observers of the bureau and temperatures were measured at different parts of the burning structures by means of thermocouples.

The test was made as a part of the fire resistance work of the bureau for the purpose of finding out something about the intensity and duration of actual fires in buildings. It was a burn out of a building filled as an office with the customary desks, wooden and metal filing cases, and book cases, all of which were taken from the condemned stock of the General Supply Committee of the Government, and consisted of stuff which had been declared unfit for further use.

The building had brick walls of the so-called "Ideal" construction, in which the bricks are laid on edge, alternately presenting faces and ends to the surface, with an air space in the middle of the wall. The roof and floor were of concrete, and there was a top floor of wood separated from the concrete by a cinder fill. An insulated safe, of a type generally recommended for use in fire resistant office buildings

was among the furniture. The contents of the safe came thru the fire without serious damage from heat.

The fire was started as rapidly as possible from one end of the building, simulating the condition in which it is let into the office from an adjoining room where it has gained full headway. In about 15 minutes the whole room was blazing with volumes of flame and smoke issuing from the window openings. The maximum temperature reached was between 1,800 and 1,900 deg. F., and the effective duration of the fire was about an hour. At the end of that time the temperatures although still high, were somewhat below that point at which the structural members were endangered.

Everything of a combustible nature which was exposed to the fire was entirely consumed, including the contents of the metal filing cabinets.

The general purpose of the test was to promote the use of fire resistive materials and construction, using no more than is actually necessary and thus keeping down the cost which acts now as a deterrent to the use of such construction.

✻ ✻ ✻

The man who will make the biggest profits in 1923 is the man who will be best fortified to meet conditions. Fortify yourself by attending the convention of your association.

Business Briefs and Trend

INDUSTRIAL ACTIVITY APPROACHES 1919 PEAK LEVEL

In its ninth bi-monthly review of industrial-economic conditions in the United States, just issued, the National Industrial Conference Board says:

The recovery of business in the United States since the severe depression late in 1920 and early in 1921 has been unusually rapid, and industrial activity today is fast approaching the level at the peak of the boom of 1919-1920. General business is probably not quite up to this point, but the general situation is sound and far better than could have been reasonably expected at the beginning of 1921 or even at the beginning of 1922.

The business and industrial situation as a whole has shown a remarkable degree of improvement since the slump of 1920 and 1921. An index of industrial activity compiled by the National Industrial Conference Board and including 17 of the principal basic industries of the United States showed that, compared with the monthly average for 1919-21 as a base, industrial activity for the month of October stood at 124.8. This compares very favorably with 65.7, the index number for January, 1921, and the low point since the beginning of 1915. The peak was reached in October, 1919 and the high point for 1922 so far was reached in June, when the index stood at 119.9.

Business Index Rose Ten Per Cent.

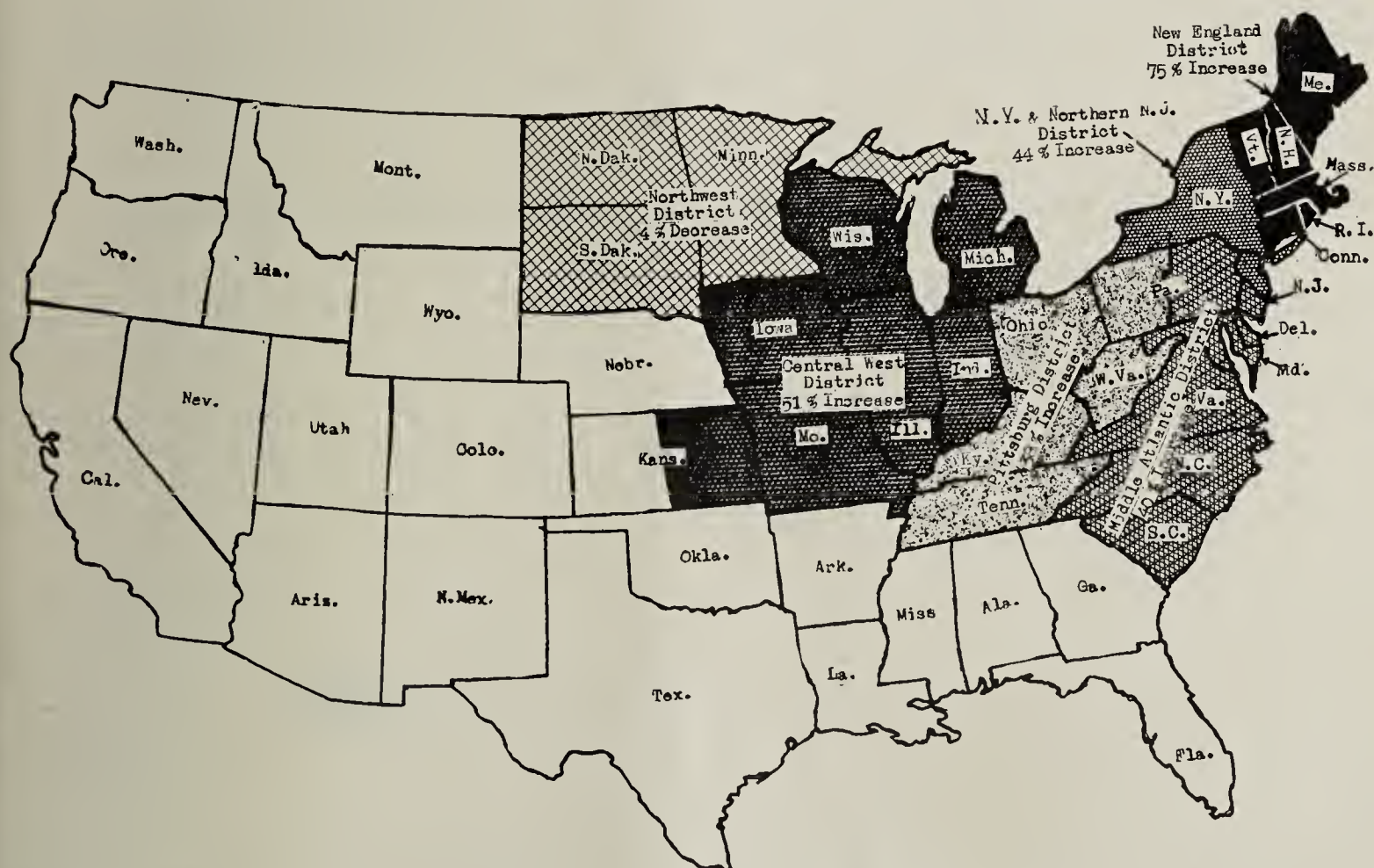
This index of industrial activity shows that the index rose ten per cent. from September to October and was 22.6 per cent. higher in October, 1922 than in October, 1921. These

facts indicate that industry has recovered much more rapidly than is generally supposed and that it is now at a very high point. In fact, it has been higher only on two occasions, namely, in July, 1918 and during the after-war boom in 1919 and 1920.

During October and November there was a steady improvement in the industrial situation. Fundamental conditions have become more sound. The evidence of this is to be found in those indices which are commonly accepted as measuring business conditions. The production of pig iron and steel ingots has increased, and during October it reached the highest point since the beginning of 1921. The unfilled tonnage of the United States Steel Corporation also rose considerably, indicating that even the increased production of iron and steel during October is by no means keeping pace with demand, which continues at a high rate. Commercial failures have decreased. Railroad car loadings have reached almost record-breaking figures in fact, car loadings for the first ten months of 1922 are higher than for any similar period.

Price Tendency Upward

Prices have somewhat advanced and the tendency during the past two months has been slightly upward. Wholesale prices have increased appreciably and in most lines seem to be firm and strong. Prices of staple raw materials have shown a considerable advance. Retail prices, however, have not as yet reflected the increase in wholesale prices and, with the exception of those of coal and food, remain almost stationary.



Per Cent. of Increases, 1922 over 1921 (11 Months), in Contracts Let in the 27 Northeastern States Covered by the F. W. Dodge Co. Chart Taken from Index.

The agricultural crops of the country are larger than usual. Prices, however, except for cotton, are relatively low. As a group, prices of agricultural products have advanced less beyond pre-war levels than prices of any other of the principal commodity groups. This condition has caused criticism and unrest in agricultural sections of the country, where it is felt that the general prosperity of the industrial districts has not been shared.

The most serious impediment to increasing business and further industrial activity is the car shortage, which has prevented those industries that ship in carload lots from attaining as large an output as they would otherwise have been able to effect. This condition is partly an echo of the railway shopmen's strike during the summer, but is more definitely a result of the tremendous volume of industrial and agricultural products which the railroads have been called upon to transport.

Labor Shortage Handicapping Industry

Labor shortage, particularly of the unskilled, has also handicapped some industries, and is considered an obstacle to any great increase in activity in the basic industries. The restrictions which have been placed on immigration, together with the large outflow of emigrants, are thought to have seriously affected the supply of labor, and to have led to the prevailing upward movement of wages.

Money conditions have been characterized by relatively low rates of interest and re-discount, large availability of credit, increased specie reserves, and continuance of heavy investment activity. The increasing strength displayed by some of the principal foreign exchanges may be explained partly by the fact that absorption by American investors of foreign securities, both governmental and private, amounted to \$653,000,000 during the first half of 1922, compared with \$626,000,000 during the whole of 1921. The growth of commercial loans of banks and expansion in note circulation are due rather to an increase in fundamental business than to the seasonal demand of agriculture.

The Near East problem continues to unsettle the international situation and has probably had some part in discouraging the development of export business. If a practical peace can be formulated at Lausanne, it is likely to have a

favorable effect not only upon the foreign trade of the United States, but upon domestic business as well.



NEW YORK DEALERS STORING BRICK

Brick advances \$2 a thousand, November cement shipments exceed all previous records at the stupendous total of 10,160,000 barrels at the same time German cement advances 80 per cent. in price and the rush in New York to get building work started before the expiration of the present tax exemption is underway, according to Dow Service daily building report of December 16, 1922.

The significance of these building material market factors is explained as follows:

Dealers are piling up brick in their own local storage spaces for the first time in several winters. Also they are putting in brick against winter requirement at prices higher than they were paying in the wholesale market the last of August when the price was \$16 to \$18. The week-end price was \$17 to \$18 with a few sales recorded at \$18.50, and the winter covering charges still to be applied.

There were only 26 barge loads of brick in the wholesale market Friday, but the river was still navigable to Albany as far as ice was concerned, so that the source of supply for this market is still open. Inquiries made for Connecticut brick indicate that there is little supply to be expected from that source this winter except at prices much higher than present quotations. Many of the 26 barge loads lying here at the week-end are being held outside of the open market by purchasers for their own distribution. Brick manufacturers are having trouble to get barge loaders to work during inclement weather.

The report of cement movement for November indicates that the shipment of cement from all mills of the country for 1922 will be 116,000,000 barrels, exceeding by 15,000,000 barrels any previous year's shipments in the history of the industry. The current stocks on hand are only 60 per cent. of those of last year.

The usual tendency to shade lumber prices at this time of the year is existent now, especially on some items of yellow pine being noticeable on short leaf dimension.



Tangible Results to Be Keynote of C.B.M.A. Meeting

IF YOU HAVE not as yet made your hotel reservations for the big meeting of the Common Brick Manufacturers' Association, you had better act quickly. Secretary Stoddard reports that there is a great interest being crystallized in the forthcoming convention which is to take place at Cleveland, Ohio, on February 5, 6 and 7. The date of the big event is rapidly approaching and all who propose to attend should send in their reservations to the secretary's office immediately.

A considerable part of the program has already been arranged. It is being built upon the platform or around the keynote of — tangible results that have been achieved for common brick producers thru the efforts of the Common Brick Manufacturers' Association.

There will be six different sessions at the convention and each devoted to some particular subject. Some of the subjects are: advertising and publicity, cost accounting, local and state organizations, and brick substitutes. Each of these sessions will be featured by an address by some noted speaker.

C. C. Parlin, Director of Commercial Research Bureau, Curtis Publications, will give an address relating to advertising and publicity. E. J. Jordan, of the Jordan Motor Car Co., will also be on the program. Mr. Jordan has the reputation of being one of the leading minds in the country

on merchandising subjects. Leonard P. Ayers, of the Cleveland Trust Co., is another notable speaker who will grace the program. He is known to most of the readers of Brick and Clay Record as a student of economics, especially those relating to building conditions.

There will be ample time for discussions in all of the sessions and the one on cost accounting will be a special session for those who are taking the association's correspondence course in cost accounting.



FUEL EFFICIENCY AT BRICK KILNS.

The crew of the laboratory car "Holmes," which was equipped with field ceramic laboratory, and which has been used by the ceramic experiment station of the Bureau of Mines at Columbus, Ohio, in making efficiency tests on fuel burning practice at various brick kilns in the central district, has completed its survey, and the car has been dismantled. At many of the plants visited, the bureau's engineers were able to point out corrections that would either reduce the time of firing the wares or the amount of fuel being used. On one particularly well operated brick kiln by making changes in the draft system and method of firing, the time of burning and amount of fuel was reduced about one-fifth.

How Advertising Can Make an Industry

Problems Other Industries Besides Face Brick
Have Overcome—What Cooperative Adver-
tising Means—Everyone Should Participate

Charles C. Parlin

Manager, Division of Commercial Research, Curtis Publish-
ing Co., Philadelphia, Pa.

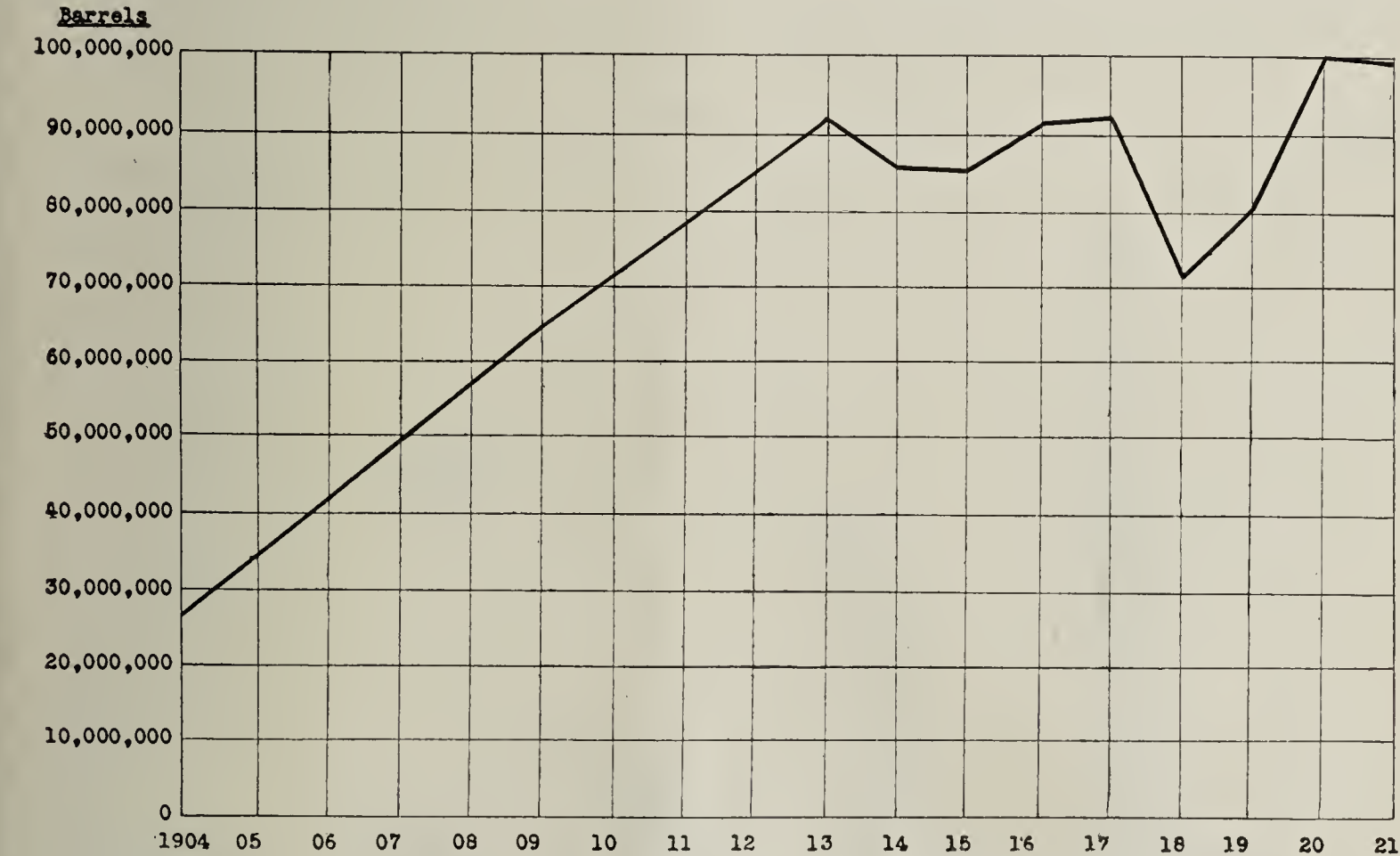
THE PROBLEM of most serious importance in the industry of America today is the problem of selling. You are reading a great deal of the increase in the demand for construction materials of all kinds, and probably have orders you cannot fill, and as you look at the problem today you doubtless say that even if you had greater facilities you could still sell all that you could produce. That very fact, however, is causing an increase in production in your industry. People are transferring from making any other line into making things that are competitive with yourselves, and when the period of pent-up demand which has been expressing itself is passed, you are likely to face a situation in which you will find an excess plant capacity and a more serious sales problem. Plants and capacity to produce new plants have so increased that any excess demand for possible supply is probably only for a brief period, and in the long run there are likely to be periods of excess material to be sold and the problem will be how to sell.

This situation is quite a problem in an industry such as yours which is thoroly established and where sales methods

Editor's Note—This is the Address Delivered by Charles C. Parlin on the Occasion of the American Face Brick Association's Convention, December 7, 1922.

were pretty thoroly crystallized, as in other old industries, before advertising became a factor. That has been true of the steel industry. It has been true in the textile industry; in the boot and shoe industry; in fact it has been true in most of the industries that characterize the old manufacturing sections of our country. Today shoes made in Chicago are sold under the manufacturer's advertised brand almost within the sound of Boston shoe factories; underwear made in Minneapolis is sold under the manufacturer's advertised brand in the greatest textile stores of New England; and hosiery manufactured in Wisconsin is sold under the manufacturer's advertised brands in many of the villages and hamlets and cities of New England.

Now go a step further and take an industry which is more closely allied to your industry. The lumber industry, for instance, which is coming pretty close to your industry in its competition. A decade or more ago the lumber interests felt that there was likely to be a shortage in the supply of lumber, and with that shortage an ever-increasing price. This industry had its old established methods, it did not sell thru advertising; in fact, like many of the old industries it did not have effective sales methods. Sometimes a lumber manufacturer made his lumber and piled it in the yards and waited



Production of Portland Cement During the Years 1904 to 1921. The Rise of the Curve Is Steady Until the Turbulent War Years Were Encountered. The Level Now Is Higher Than Ever Before.

for the jobber to come around and bid on it; and when the jobber came around to bid the manufacturer made the best guess to meet the maximum amount he might hope to get out of the jobber. If the jobber took it the manufacturer knew he guessed too low, and if he did not take it, he knew he guessed too high, and he modified his next guess accordingly.

How Cement Got Its Start

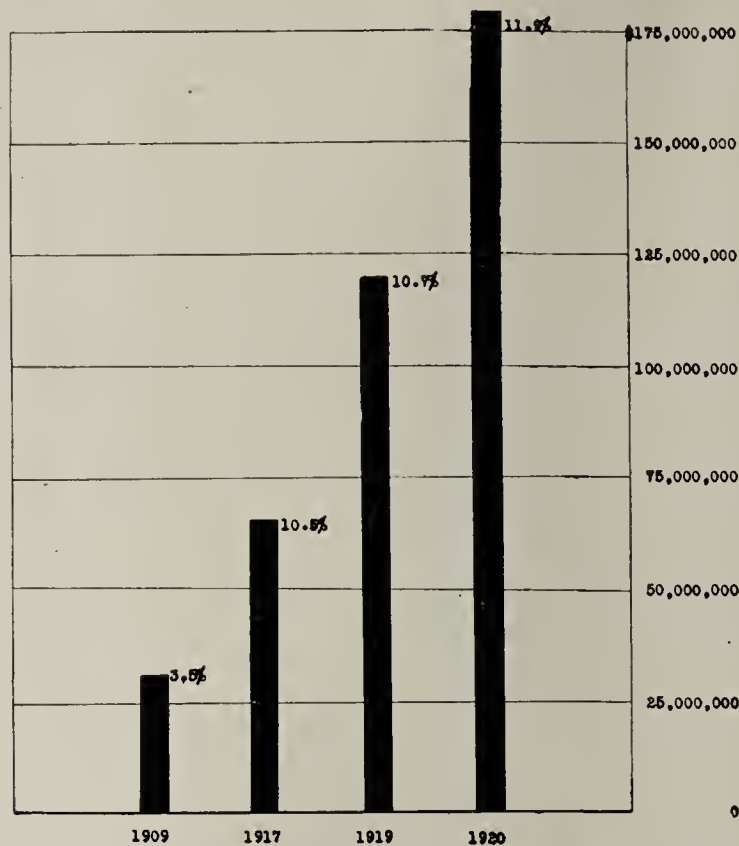
But when the idea began to permeate into the minds of the public that lumber was getting scarcer and higher in price, there came the thought "What will we do when we do not get lumber?" Just then there came a suggestion to use concrete, to use metal lath, to use asbestos shingles, prepared roofing, and so forth. These industries which made these products had a different sales problem from that of lumber. People did not know anything about their products and these new industries had to educate the people to their use and hence they turned to advertising. Soon in leading publications there began to appear the advertising of substitutes for lumber. As these products won markets it seemed that after all the supply of lumber might be sufficient for the needs of the country. In fact there seemed to be too much of it, and prices took a downward turn.

Problems Lumber Faced

Then the lumber industry began to consider the possibilities of advertising for lumber but someone asked: "How can we know that advertising can be applied to lumber?" And the reply was "that the best evidence that advertising can be applied to lumber is the fact that it has been applied so successfully to the substitutes for lumber, that the lumber industry has come to have a serious sales problem. And more than that, the advertising of substitutes for lumber has so influenced the dealer upon whom the lumber industry depends for its sales, that today many of the retail dealers spend most of their time in exploiting the merits of the substitutes for lumber." Today considerable advertising is placed by the lumber industry.

Coming even closer to your own industry. The brick industry has not been an advertising industry until very recently. Now, thru your cooperative advertising you have

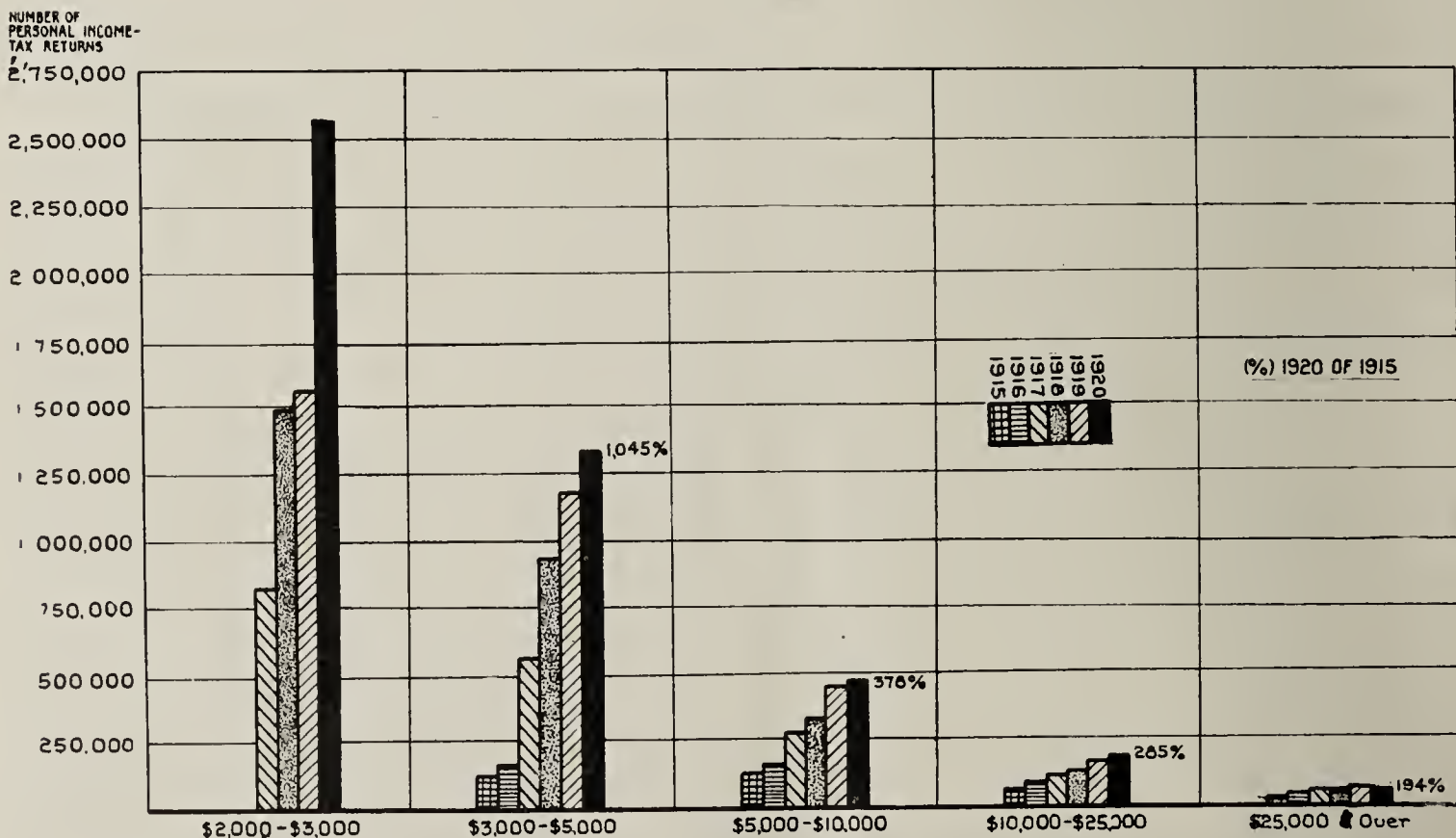
made a beginning in appealing to public opinion, and in that, advertising is one of the greatest opportunities to stabilize and insure the permanency of your industry. Meanwhile, there has been very rapid growth in other industries. The production of Portland cement increased from about 26,000,-



Concrete Work in Building Construction in the Years 1909 to 1920.

000 barrels in 1904 to approximately 100,000,000 barrels in 1921. Concrete work in building construction increased from approximately \$31,000,000 in 1909 to more than \$175,000,000 in 1920, an increase from 3½ per cent. of the total of building construction in 1909 to nearly 12 per cent. of the total building construction in 1920.

Structural steel does not show any such story of growth.



The Steady Growth of Incomes in the United States During the Years 1915 to 1920 Inclusive Is Shown by This Chart.

Probably, the worst situation that the structural steel people face and that you face, is the fact that your construction has been so long known that it has seemed to become commonplace and by many is looked upon as the old way of doing it. A generation ago as an individual saw a great structure

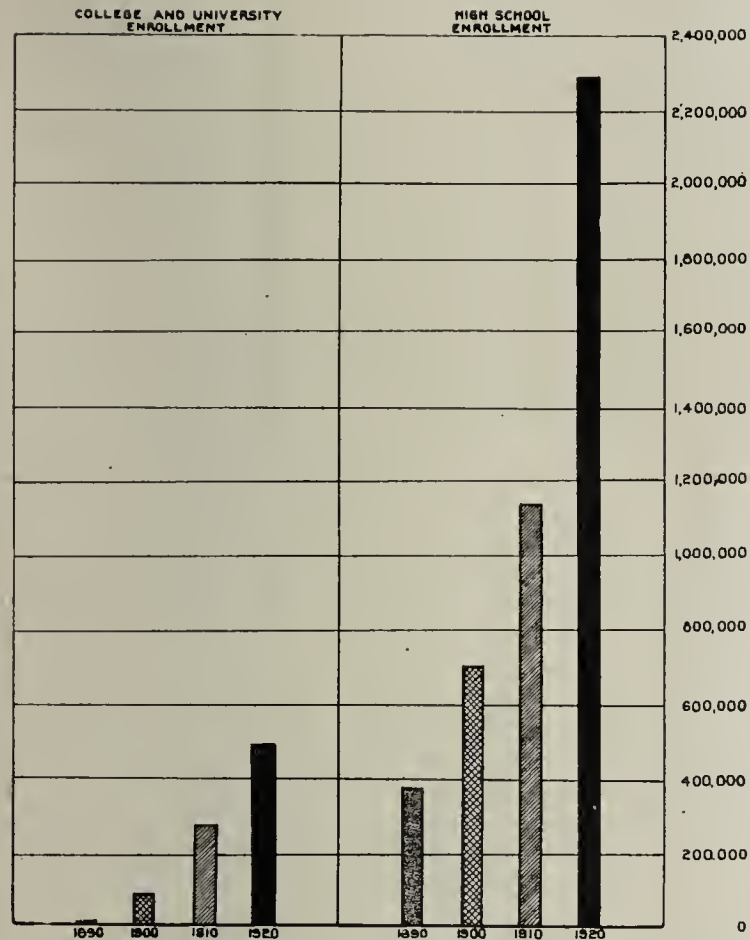
and they say, "That is modern building." Concrete is in their minds as a modern method of construction, but structural steel and brick construction was a familiar sight to their fathers, and why should they be interested in it? If you would keep a quickened interest in your method of construction, it is necessary to tell your story in such a way as to inspire in the imagination of the American people a desire to know and to appreciate the merits of face brick construction. Your association has already made a beginning in advertising and with excellent results.

Big Developments Affect Markets

Several revolutionary changes that have been taking place in sales conditions have a very definite bearing upon your advertising problems. One of these revolutionary changes is the vast development in the number of people who have larger incomes, those who are in a better position to buy what they please and build the kind of houses they want. The chart shows that in the year 1920 there were approximately three times as many people with incomes from \$2,000 to \$3,000 as in 1917. There were approximately ten times as many people with incomes from \$3,000 to \$5,000 in 1920 as in 1915; 3½ times as many people with incomes from \$5,000 to \$10,000; more than 2½ times as many at from \$10,000 to \$25,000; and nearly twice as many with incomes over \$25,000. Probably that was an exceptional year, but even if we take the year 1919 we still have approximately ten times as many people who had incomes from \$3,000 to \$5,000 as in 1915. This indicates an increasing number of people who will have incomes that will enable them to own or to build a home with face brick.

More Educated People

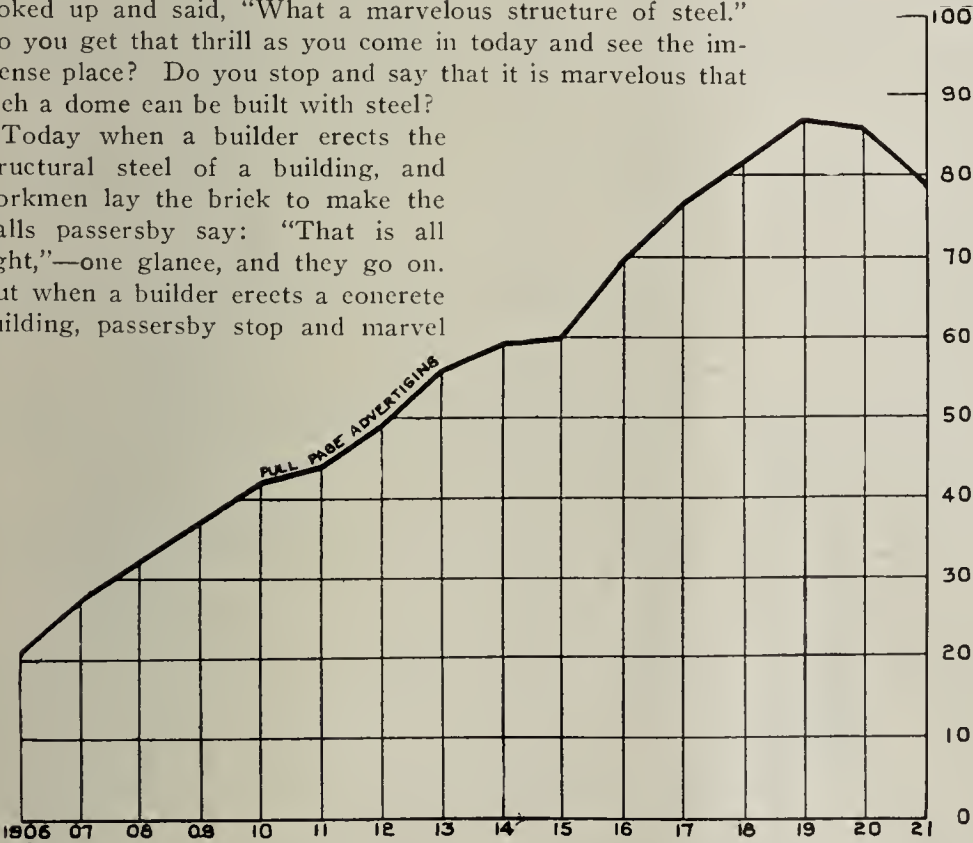
The second great revolutionary change has been the development in education. A few years ago it was rare for a man to have been to college and even many to high school. Today the colleges and high schools do not know what to do with the people who are anxious to enroll. You may travel the country over from Maine to California and the largest building in almost every city is the high school building and behind it perhaps the annex to take care of the people who cannot be packed into the big building. In 1890 there were



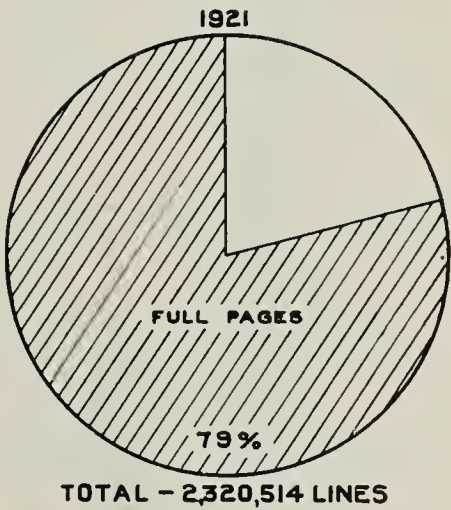
Number of Pupils Enrolled in Our High Schools, Universities and Colleges in the Years 1890 to 1920. The People as a Whole Are Steadily Becoming More Educated.

of steel going up, he said, "That is wonderful; it is marvelous what they can do with structural steel." There was a day when people who came under the dome of a great hotel looked up and said, "What a marvelous structure of steel." Do you get that thrill as you come in today and see the immense place? Do you stop and say that it is marvelous that such a dome can be built with steel?

Today when a builder erects the structural steel of a building, and workmen lay the brick to make the walls passersby say: "That is all right,"—one glance, and they go on. But when a builder erects a concrete building, passersby stop and marvel



Space Tendency in the Saturday Evening Post. Chart Shows Per Cent. of Full Page Advertisements, 1906 to 1921. In the 16 Years Full-Page Advertising Increased Over 210 Per Cent.



less than 400,000 students enrolled in the high schools. Today there are more than two and a quarter million. That is not only about two and a quarter million out of the hundred million people, but two and a quarter million out of the small part of one hundred million who are of high school age and have the intelligence to make use of a high school training.

That means definitely three things. First, the earning power of the United States is being definitely augmented. More people are able to earn these buildings made of face brick. In the second place, it means that there is an increasing appreciation of good merchandise. More people are able to appreciate the buildings that are made of face brick. As they go to high school and to college they form associations, they visit each other's homes and see how each other live. The result is that the best and most correct thing is the thing which this education is tending to stimulate, and this means a very great increase in the markets for all these things that can compel the sober intelligence of educated people. In the third place, it means a very definite increase in the number of people who can obtain from the printed page an impact strong enough to lead to action.

Automobile Changed Market Conditions

One of the principal things that has changed market conditions has been the automobile. Ten years ago the man who lived in a small community—approximately half of our population live in places of 2,500 population and under—had to buy from the merchants who were in that particular town and had to buy the goods which they kept. He had to buy the particular kind of brick and a particular kind of lumber, and if they did not carry brick he had to buy what substitute was there. With his horse he could not get more than ten miles away, whereas today with an automobile a man can go wherever he wishes, and if the goods which he wants are not in

the little village he can go to the county seat perhaps, or still farther to a larger city.

The result of the advent of the automobile is that today the great American market is open to the American manufacturer who makes his wares known, and today the man wherever he is living, if he desires a thing, can go with his automobile and his automobile truck and get the material he wants.

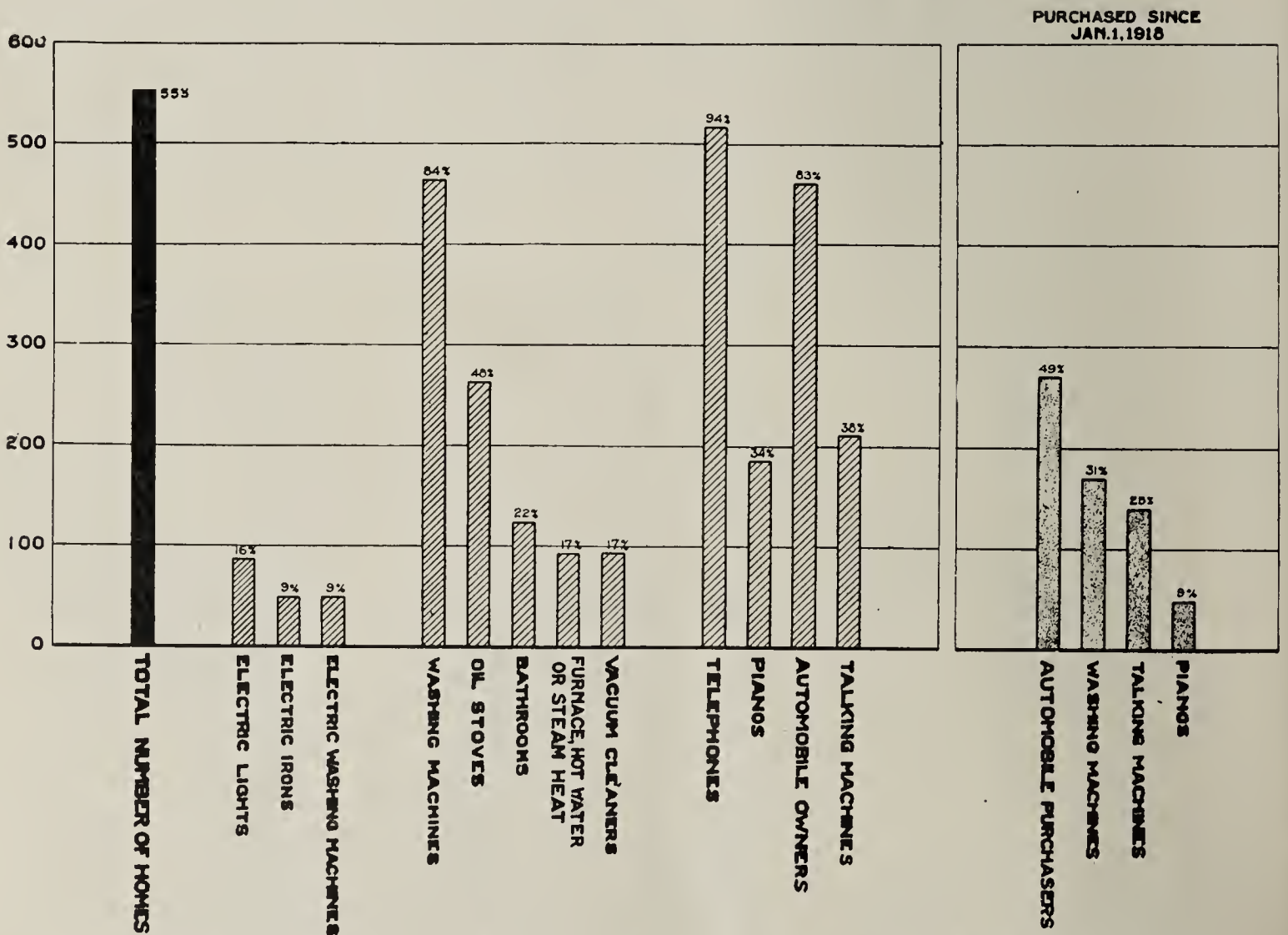
In the spring of 1920 we made a survey of 144 square miles of Kansas and called upon every home in that area. It was found that 83 per cent. of the farmers had automobiles, so that 83 per cent. of them were independent of the local dealer, and if the local dealer did not have what they wanted to buy they could get it elsewhere.

Market for Homes Greater Than Ever

The net result of this whole thing has been the development of this great American market of something over twenty-four million homes of which 45 per cent. are owned by those living in them. Your greatest, richest and strongest market, is the market to sell people who are going to build new homes, a market to sell people who are already living in brick houses so that they will be better pleased with them, a market to sell the people who live in frame homes, that they may wish they lived in brick homes so that when they move they will buy a brick home.

Quality Must Be Predominant

Advertising is probably as old as the human race; since man wanted to swap he wanted some kind of medium to express it so that he could make the best bid for his merchandise, but modern advertising is very recent and a large part of the development both in volume and in advertising thought is the result of the last ten years.



Home Equipment on Kansas Farms. A Glance at This Chart Will Show What an Excellent Market the Farmer Offers.

One thought, however, has remained constant thruout and that is the supreme importance of quality. The only thing that can be sold by advertising is the thing that is right. You say "What do we mean by quality?" By quality in advertising we mean this: The quality that gives such satisfaction that the person who buys it once will buy again, and will recommend it to somebody else. If any man wants to test the quality of his product with reference to advertising he has only to ask himself this question: Is the quality such that you with full knowledge of your own and competitive products would buy it for such a purpose and at such a price as you are planning to sell it? If you can answer that question affirmatively you have an article upon which you can turn the light of publicity. If you cannot answer affirmatively you cannot safely advertise. By advertising you merely turn the light upon your products in order that people may with a full knowledge and full understanding buy your products.

There has been a growing appreciation of the importance of copy. You must have a message that is clear-cut and effective, a message that will sell somebody.

Public Waking Up to Brick

You have used your copy very largely for the purpose of gathering inquiries. In that you have been successful, as indicated by the number of people who have bought your booklets. You have also apparently increased the public consciousness of face brick to judge from a recent inquiry of the Ladies' Home Journal. In 1895 the Ladies' Home Journal started out to make a study of homes and plans. Mr. Bok started out to improve the interior arrangement and the exterior appearance of homes in the United States. That was a pretentious undertaking but it was accomplished and Mr. Roosevelt said of Mr. Bok: "Bok is the only man I ever heard of who changed, for the better, the architecture of an entire nation, and he did it so quickly and yet so effectively

that we didn't know it was begun before it was finished. That is a mighty big job for one man to have done."

How Home Architecture Was Changed

Mr. Bok had a plan department that prepared plans which were promoted by the Ladies' Home Journal and sold for \$5. One of the revolutionary changes was the omission of the old time parlor which apparently was unnoticed except by one woman who, after she had built ten of the houses, discovered that none of them contained a parlor. Servant rooms were provided with two windows; the exterior was made beautiful and plans were offered for beautifying the grounds.

In November, 1921, The Ladies' Home Journal, in order to secure an expression from its readers as to the type of houses they preferred, conducted a House Plan contest. The women who read the Journal were asked to submit their ideas of the ideal home for the family of average means. The editors did not set up any requirements beyond this one nor did they make any leading suggestions which would induce any certain type of plan.

More than 6,000 plans were received from every state in the country. They came from women living in every size place, from the little village to the great metropolis. Over 5,000 of them expressed a very definite preference as to the material to be used in constructing the home for which they submitted ideas.

Brick Popularity

These preferences, grouped into four classifications of material and divided into geographic sections are shown on the next page. The brick preference is said to be a very marked increase over any previous expression. Brick advertising is having its effect.

It seems significant that of these readers of the Ladies' Home Journal more than 25 per cent. preferred brick. But

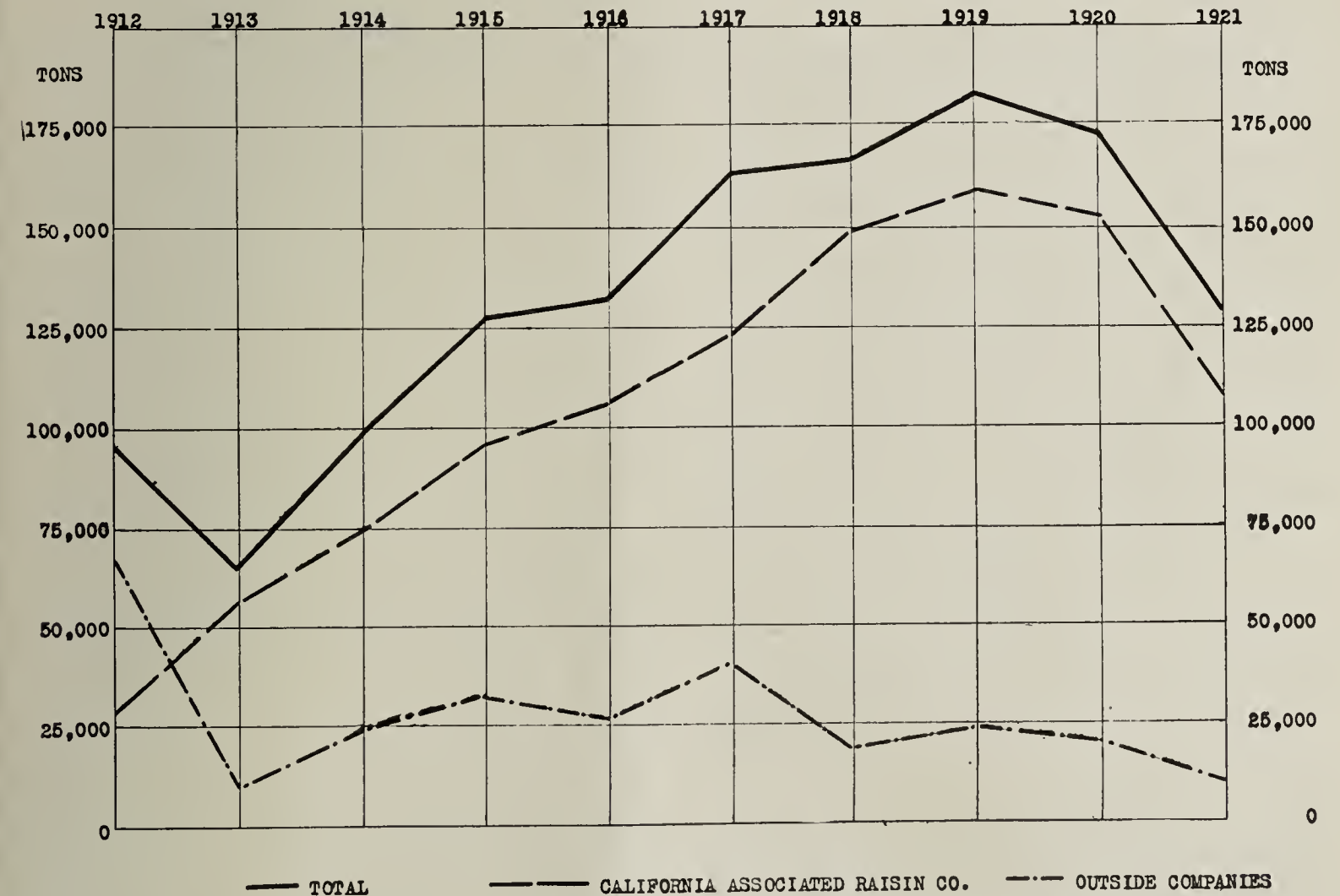


Chart Showing Raisin Crop in California During the Years 1912 to 1921. The Tremendous Jump in Tonnage in the Ten Years Is Due Almost Entirely to Advertising.

while that per cent. is gratifying there yet remains 75 per cent. who are still thinking in terms of other material, leaving a large market to be won.

Preferred Materials Expressed in Per Cents.

CITY, VILLAGE AND SUBURBAN HOMES

Eastern	21.8	47.3	30.	0.9	100.
Southern	42.5	18.1	38.2	1.2	100.
Central	30.2	34.	35.1	0.7	100.
Northwestern	42.5	18.1	38.2	1.2	100.
Western	8.3	51.2	40.	0.5	100.
All Sections	25.7	38.2	35.4	0.7	100.

You have considerable competition in advertising. Here are some of the things that have come to my attention. In 36 leading national publications there was more advertising done by each of two individual lumber manufacturers than was done by this whole association. One concern offers to send you a book illustrating frame houses. A lumber association offers to send a new book on the use of lumber. A lumber company, to illustrate the use of lumber, pictures a home that may be built with it and the copy says, "The most widely used building material that goes into homes is lumber." Another manufacturer has a full page advertisement on the application of mill construction to factory building and pictures a factory built of wood.

In 1921 in the 36 leading publications something like \$2,300,000 was spent by about 41 associations or an average of about \$60,000 per association. It is rather interesting to note that in 1921, which was a hard year to get payments, the amount was within a quarter of a million of the amount that had been expended in the flush year of 1920, showing something of the permanency and stability of cooperative advertising.

Problems of Cooperative Advertising

The problems of cooperative advertising are many. In the first place, an association must face the financial problem. In the present active building market perhaps someone may feel that it may not be necessary to do any more advertising. The hardest problem of cooperative advertising is to live down a success. The most discouraging thing about cooperative advertising is that success so frequently kills it. As soon as association advertising is successful somebody says, "We don't have to advertise any more, we have a market." But that, too frequently, is the first step to failure.

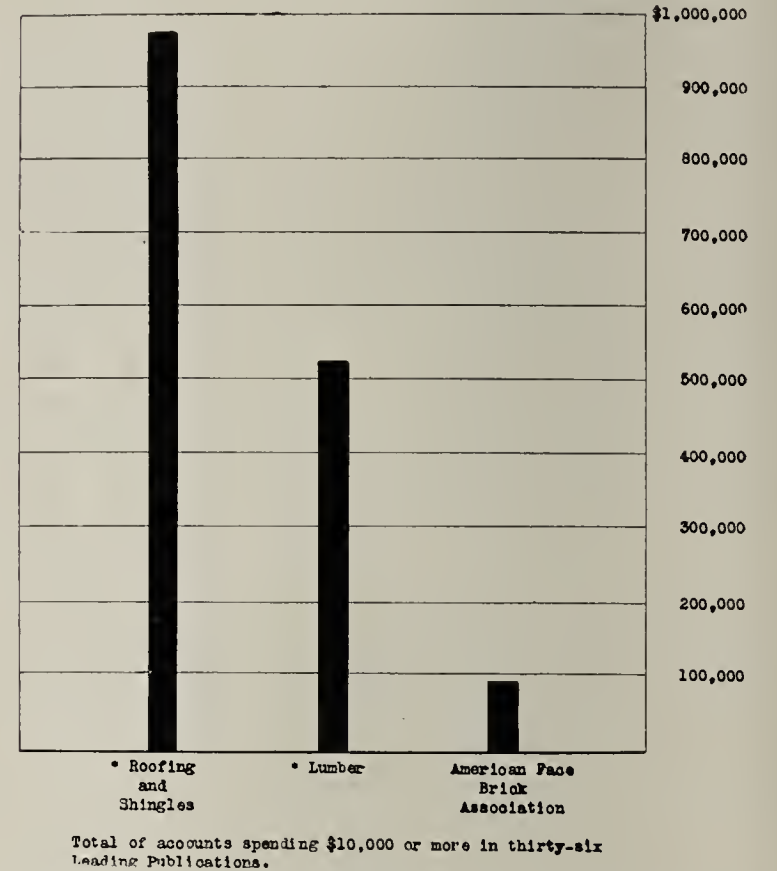
Today you face a critical situation with reference to your association advertising. Your contracts expired the first of August and you decided to reduce the amount of your expenditure per thousand in order that you might get a larger number. But, you are not getting definite contract commitments. The experience of other associations indicates that without definite commitments you are headed for a period of decline, and of fading out of your advertising appropriation. It seems necessary to face the situation squarely and decide whether you want cooperative advertising or not. If you want it, you must have some certain, dependable means of raising money. In other words, you must have a contract, a contract based over a period of years. I believe that that is the only assurance that you can possibly have of the success of your advertising efforts. That is necessary because contracts for space must be made long in advance of date of issue.

Who Will Be Responsible?

Somebody must put his name on the dotted line and be responsible for the payment at the time payment becomes due. Unless you have the contracts upon which you can borrow money, your committee will have to do one of two things; either cancel advertising space or assume personal

responsibility for payment. It is unfair to put up to your committee to finance an advertising campaign without valid contracts to protect them. The net result of lack of contract usually is a cancellation first of one piece of copy and then another until the advertising fades away leaving too frequently a wake of dissatisfaction and ill feeling and sometimes recriminations.

Do you want to continue what you are doing in the first



Total Advertising in 36 Leading Publications in 1921. There Are Many Individual Companies, Competitors of Face Brick, That Spend More for Advertising Than the Entire Face Brick Association.

place? Do you want to go a step further and supplement what you are doing by display advertising? You have another task in addition to that of selling the man who is going to build a home. You have to sell the man who is going to buy a home in a block of houses so that he shall prefer to buy face brick rather than some other kind of front. The contractor builds what will best sell. The architect builds what will please his patrons. If his patrons are led and if he is taught to prefer homes of lumber he will draw plans for the use of lumber. If his patrons are taught thru advertising to prefer cement and stucco, he will plan buildings of cement or stucco. If you want to win the American market of home owners to prefer face brick, you need display advertising to make the whole American public conscious of face brick—not merely a relatively small number of people who write for your booklets but the vast public who live in homes, some owned and some rented, so that all will prefer to live in face brick houses, so that home builders whether they build for themselves or for rent, will recognize a public preference for face brick. It is none too early to squarely face the problem of using display advertising as well as to seek for distribution of booklets.

Do No More Than You Can

The essential question is whether to advertise at all and if so whether you are going to put your name on the dotted line of a three years' contract and obligate yourselves for the payment of certain definite sums of money. I would rather see an association take on what it can carry thru than to try something so big that they could not go thru with it. The most necessary thing of all is to carry your proposition thru.

Somebody says, "We are willing all right, but the fellows over there will not join." In cooperative advertising, the benefits fall upon the unjust, the same as upon the just, and to succeed you need the spirit to be willing to do something that while it helps yourself will also help some undeserving person. Experience shows, however, that advertising tends to increase the percentage of people within the association. The California Raisin Growers is one of the most striking instances of the success of cooperative advertising. Before advertising was undertaken Fresno was a most discouraging sight. The growers could not get back the cost of production. One said, "We have 20,000 tons of raisins and cannot sell them. What would happen if we had a bumper crop, if we got 90,000 tons?" They undertook advertising and it was lucky they did for that year they got 110,000 tons, and the normal crop being 60,000 tons they had 50,000 tons excess and 20,000 tons holdover. But advertising did it and the dealers' shelves were swept clean for the first time in many years and it left them in a position where they were able to get prices for their product that justified production. And now at Fresno you find the picture of a contented town where the people have automobiles and where prosperity is evident on every hand. In 1921 in the 36 leading publications the Associated Raisin Co. spent over \$650,000. Along with that, they got an increasing percentage in crop in the association.

Advertising Increases Association Membership

Now, that increase in the percentage within the association involved work. Do not expect your secretary, or some officer of your association, to get your members to contribute for advertising. The problem of getting the membership is your problem and the members of the California Raisin Association when their contract expired made it their problem and

there was not a raisin grower in the whole state of California that did not know that the whole membership of the California Raisin Association was interested in having him join the association and the result is that they got almost everybody into it.

It is your problem, in the first place to be willing to put your name on the contract and in the second place to go out and get everybody to come into your association.

The same thing happened with the California Fruit Growers' Association. The result of advertising has been a marked increase in the percentage of the crop in the association.

\$91,000 Spent to Advertise Face Brick

In 36 national publications, lumber advertising aggregated approximately \$525,000, roofing and shingles approximately \$980,000, while the Face Brick Association was recorded as having placed approximately \$91,000.

There has been a great development of cooperative advertising. Advertising will do its part. It will function for associations as it does for individuals. We have a wider reading public than ever before, we have a greater public buying advertised goods than ever before. The problem for you is, can you look each other in the face and say "We trust each other enough to see this thing thru," and as success comes, will you have the power to hold together in that success and keep right on with your cooperative advertising?

You have to sell not only your own brick but the brick of the whole industry. If you do not, those whose product is not sold will wreck your markets by price competition. You gentlemen who have at heart the problems of this great industry have to take these problems seriously in hand and say, "For our own good we will build the markets for the industry."



Hollow Tile Annual Set for January 25-26 in Chicago

JANUARY 25 AND 26 have been selected by the Hollow Building Tile Association as the dates on which that organization will meet in convention. The meeting will take place at the Drake Hotel, Chicago, Ill. On the day preceding the convention a directors' meeting will be held to discuss the business of the association.

Sessions will be devoted almost entirely to discussions and the important problems of the association and the industry will be talked over. The meetings will provide an open forum for the discussion of any problems which a manufacturer may wish solved. Certain definite topics will be brought up for review by the chairmen of the various committees.

There will be luncheons on both days at which able and competent men will speak. Arrangements will be made to take care of the delegates during the evenings and time will not drag heavily on their hands at any time.

Added 38 New Members

Within the last two months or three months the Hollow Building Tile Association has done remarkable things toward increasing its membership and the added names on the roster of the association will help to make the 1923 convention the greatest of all hollow tile meetings. 38 manufacturers have been added to the list of members and the organization is now well on the way to securing practically 100 per cent. of the tile output of the country.

The scope of the association's work has been increased and its value to its members enhanced by the establishing of branch offices in various parts of the country with able representatives to take care of the hollow tile interests in each section.

Just recently three new group representatives have been

added to the personnel of the Hollow Building Tile Association. The organization now has five men who are looking after the interests of its members in the field.

THREE new group representatives have been added to the personnel of the Hollow Building Tile Association. This association now has five men who are looking after the interests of its members in their local fields.

Mr. William S. Roberts has been selected as representative of Group III, comprising the states of Illinois, Indiana, and Wisconsin. His experience in the clay industry has been extensive. He was employed by the city of Louisville, Ky., in the office of the Commissioner of Sewage as assistant engineer for 12 years. In 1916 he joined the Evens & Howard Fire Brick Co., at St. Louis, Mo., and remained as salesman of this company for five years. He left to join the Laclede-Christy Clay Products Co. at St. Louis. His experience in promotion and sales work makes his success for the Hollow Building Tile Association assured.

This organization has also established connection with the southern states and their interests will be served by Frank J. Huse, who will have his headquarters at Memphis, Tenn. The states covered by Mr. Huse are Kentucky, Virginia, Tennessee, North Carolina, South Carolina, Mississippi, Alabama, Georgia, Florida, Texas, Arkansas, and Louisiana.

Mr. Huse is a graduate of the Massachusetts Institute of Technology and has been engaged in fireproof building construction in many of the principal cities of the West for over 20 years. His contact with architects and contractors of Chicago has been extensive. He has also had a number of years experience with hollow tile and was in charge of engineering and estimating in the Chicago office of the Na-



FRANK J. HUSE



W. W. MONTGOMERY.



WILLIAM S. ROBERTS.

tional Fireproofing Co. for three years. He has had charge of estimating and tile engineering on some of the largest buildings in Chicago, calling for a knowledge of advanced structural engineering.

Another of the hollow tile associations' most recent acquisitions, W. W. Montgomery, will, because of his tremendous experience, be of considerable value to the organization. He will have charge of the New York office and his territory will include the New England states, New York, New Jersey, Maryland and Pennsylvania. Mr. Montgomery is admirably qualified to handle the association's work in the East as he has been selling hollow tile to architects and contractors since 1899 and knows every kink of the business. His first experience came with E. V. Johnson of the Illinois Valley Clay Co., Chicago. This company was later absorbed by the National Fireproofing Co. In 1917 Mr. Montgomery went to the Wisconsin Lime & Cement Co. to introduce and manage a hollow tile department for that company.



CHANGE IN BRICK DEFINITION PLANNED

Another hearing in the big brick case before the Interstate Commerce Commission, known technically as Docket 10733, was held in Chicago, December 15. The original decision in this case defined common brick as those made out of surface clay, and the definition also contained the words, "loaded at random"! This rehearing was called at the instance of the common brick manufacturers, those making brick of surface clay desiring that the word "loose" be substituted for the words "at random," and the manufacturers of shale common brick claiming that their product was being discriminated against, and asking that the definition of common brick be changed to take in their brick. The rate on common brick has been set by the Interstate Commerce Commission at 80 per cent. of the regular brick rate on hauls up to 150 miles. At present shale common brick must be billed at the full rate, the same as face brick, as the definition does not cover shale brick.

The hearing was held before the same examiner that heard Docket 10733. Altho it lasted all day no decision was reached as briefs are to be filed, and a decision arrived at later.



CANADIAN CONVENTION PROMISES MUCH

Plans for the joint convention of the Canadian National Clay Products Association and the Western Ontario Clay Workers' Association are nearing completion. The meeting

will be held January 23, 24 and 25 at the Royal Connaught Hotel, Hamilton, Ont.

Many interesting papers are on the program and among the topics which will be discussed are the following:

Burning Clay Products with Oil; Power Shovels (Steam and Electric); Fire Prevention; Insurance; Compensation; Kiln Bracing; Getting Soft Mud Brick Production; Simplified Clay Plant Accounting; Results Obtained with Pyrometers; Economical Tile Production; Drilling Shale.

In view of the fact that practically all manufacturers of Canada are interested in either one or the other of the above mentioned organizations the 1923 convention will probably be the largest ever held.



IMPORTANCE OF COAL IN BIG BUILDINGS

Comparatively little material enters into the construction of a building that is not of mineral origin, George Otis Smith pointed out recently. From observation of a particular building while it was going up a rough formula has been deduced that can be applied to almost any modern office building, as follows: Take by weight 60 parts of gravel, sand, and crushed stone, 58 parts of tile and brick, 27 parts of building stone, 19 parts of cement, and 16 parts of steel, with much smaller proportions of copper and glass and asbestos and paint and tar.

Yet there is another mineral ingredient that enters into every one of the building materials, an invisible but essential component of the structure—the coal that helped to quarry and dress the stone, to smelt and fabricate the metal, to burn the cement and tiles and brick. And while the formula calls for 27 parts of stone, the most conspicuous constituent of the building, it has been necessary to use nearly three times as much coal to produce all those raw materials and make them ready.



RENTS WILL NOT SOON COME DOWN

In a recent issue of the New York Herald, W. J. Moore, president of the American Bond and Mortgage Co., Inc., pointed out that rents will not go down appreciably for several years. He states that every essential economic factor is at present working against the possibility of decreased rentals.

"Materials, labor and money conditions determine new construction, and therefore rents," says Mr. Moore, "and any more than superficial analysis of the trends in these conditions shows forces which must tend to check construction and therefore to maintain rentals."

Your Taxes Will Not Be Lowered

Prepare Your Books for Excess Profits Tax, It Will Be Reinstated—Governmental Expenses too High to Reduce Taxes

James W. Good

Good, Childs, Bobb & Westcott, Attorneys, Chicago, Ill.

IT MUST BE APPARENT to any student of national affairs that the great manufacturers of America, the producers of things and of wealth, are today looking for a millennium that will not dawn, for relief that will not come. I refer to the great tax burden that has become a serious burden for every successful man in America. Lower taxes will not come. They cannot come.

Changes will take place in our tax laws; reductions will be made here and there, but in the main, the cost of government cannot be substantially reduced and this cost will be met by taxation. Great as are the burdens we are in this respect in a better situation than any other country in all the world and we must look forward with patriotism and intelligence and meet the problem like men because this burden, like the poor, will always be with us.

How times have changed! In 1907 we had no income tax at all. All of the expenses of the government for that year and for a number of years prior were met by a system of indirect taxation that the ordinary citizen did not feel and did not affect industry unless it was to stimulate its production.

Taxes in 1907 Were All Indirect

In 1907, by that system of taxation without levying a penny of direct taxes on anyone either individual or corporation, all of the expenses of administering the government were paid and more than \$100,000,000 were paid in lessening our national debt. During that year the total expenses of government were a little over \$700,000,000. During the present year the interest on the national debt is over \$950,000,000.

Government you know is an experiment. Its principles and laws are not the automatic axioms of an exact science but are mere theories of men and women and before they find a permanent place on the statute books of the nation, they must be subjected to the crucial test of practical experience.

Our government not only guarantees the liberty of the individual but it also guarantees the rights of property owned by individuals or corporations and to carry out the broad principles laid down in the Declaration of Independence, it has been necessary to pass a great many laws to protect individual and personal rights and to guarantee the rights of property, and just as the government extends its influence, taking up new things, new functions, just in that proportion must taxes be raised in order to pay the expenses of government.

How Many Feel About Government

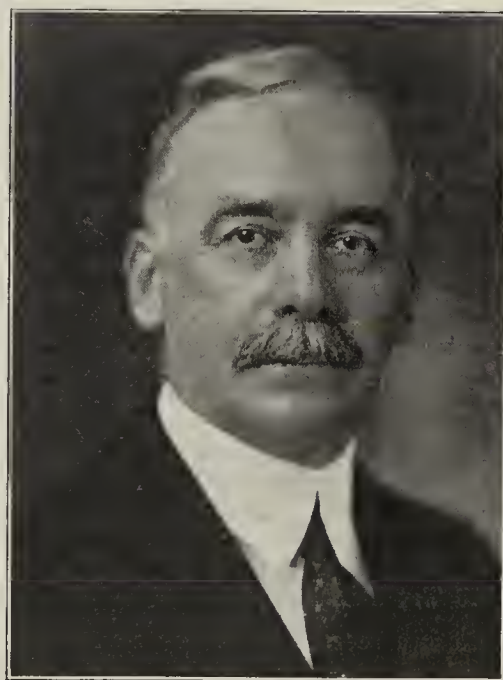
A great many people feel that the Government of the United States is an institution separate and apart from the individuals that compose it. A great many well informed men and women everywhere are impressed with the fact that the Government of the United States has some mysterious way of bringing money into its treasury, that it can take up new functions and discharge them without making somebody's lot harder. A century and a half of our existence as a nation has proved that this cannot be accomplished no matter what political party may be in power.

The Government has one way and only one way to meet its expenditures; and that is by taxation. Someone may say that it can borrow money. That is very true. And during the war it did borrow vast sums of money, more than \$26,000,000,000, but the day of reckoning must come and those loans must be met. Borrowing money is only a postponement of the day of final payment, and payment can only be made by taxation.

We Are All Part of Government

It took a European war to bring home to us a full realization that you and I, a little over 100,000,000 of us, constitute the Government of the United States, and as a general rule you and I receive thru the lawmaking body of the nation just about the character of legislation, just about the degree of economy that the average citizen is demanding at the polls.

There is today a maudlin sentiment running thru America that we ought to do more for those brave boys who helped to carry our flag to victory in the European War. All of us have or should have the deepest sympathy and the greatest admiration for those boys, but at the same time we should



JAMES W. GOOD

realize as tax payers and as citizens that America today and for more than four years has been doing more for her soldiers that participated in the late war than any country in all the world ever did for her soldiers.

In the Civil War we had 2,800,000 men on the Union side and that war was prosecuted when the science of surgery and medicine was in its infancy, and it was a war in which almost every one of those men saw active service of some

Editor's Note—This Is the Address Delivered by James W. Good on the Occasion of the American Face Brick Association's Convention, December 7, 1922.

kind. In the European War we had in the army and navy and marine corps in round numbers, 5,000,000 men, of which 2,000,000 men went to the other side and performed a great and patriotic service and some of them paid the supreme sacrifice,—more than 175,000. Others came back to us in a condition that is pitiable, but when men tell you that the government is not properly taking care of these men and is unmindful of their condition and of their sacrifice, they do not tell the truth.

How Government Is Caring for Veterans

For the first three years after the Civil War congress appropriated out of the treasury less than \$100,000,000 for building hospitals for the sick and wounded and in rehabilitating the sick and wounded, and in paying pensions and supporting

Read in this article why it is that Mr. Good says with so much assurance:

"It must be apparent to any student of national affairs that the great manufacturers of America are today looking for a millennium that will not dawn, for relief that will not come. I refer to the great tax burden that has become a serious problem for every successful man in America. Lower taxes will not come. They can not come.

"Changes will take place in our tax laws; reductions will be made here and there, but in the main, the cost of government can not be substantially reduced and this cost will be met by taxation."

the widows and orphans. For the first three years after the close of the European War we appropriated out of the treasury of the United States for the support of the soldiers of that war more than \$1,250,000,000. So when men today are asking that Congress amend the laws and grant a bonus to the able and healthy soldiers of that war, it seems to me the patriotic answer should be not only in the interests of the American tax payer but in the interests of our common good that those who were wounded in that terrible war, those who were made sick, are a just charge upon the nation's treasury, a charge that will be met in full measure. There is a duty to them that the Government will perform, even tho it is very expensive and burdensome to the tax payer and when that duty has been fully performed, when that great obligation has been discharged, there will be ample time to take care of those defenders who are well and are able to work.

Congress Will Try Bonus Again

In our state at a recent election by a vote of three to one we decided to bond the great State of Illinois to the extent of \$55,000,000 to pay a bonus to the discharged soldiers who are well and able to work. Other states have taken like action and unless I read the signs of the times incorrectly the Congress of the United States and those in authority will take that message and that verdict as an indication that America demands higher taxes upon her businesses and incomes in order to pay the bonus which Senator Borah has said will aggregate before the obligation is finally discharged more than \$65,000,000,000 and which those who advocate it admit will within the next few years require the payment of more than \$4,000,000,000 in gratuities to discharge the obligations involved in legislation that has been demanded. I speak of

this only to call your attention to the fact that legislation of this kind calls for new and additional taxes and much of similar legislation is urged from a great many sources.

Tax Payer Pays for Government

There is an increased demand for Congress to appropriate money to aid states in new experiments and improvements, and just in the proportion that Congress enacts such laws must our taxes be increased to pay for such experiments and improvements. The demand is too often made without a full realization that when the government undertakes to perform a new function, the American tax-payer must pay the costs.

14 years in public service impressed one fact very strongly upon my mind. The closer home you can bring political and administrative power, the closer to your door you can bring the government of the people, the better and more economical can government be administered, and when we take up these new things we must realize that out of the pocketbooks of the nation there must come the funds with which to pay for them, and in the end they cost more than when performed locally.

It is true that the government is extending its functions in many activities. Very few of us would be willing, notwithstanding the heavy tax that we have to pay, to go back for instance to the days of Jefferson, and be willing to do with the things that our forefathers had to do with in those times. Take for example, the post office department, a department that costs about \$600,000,000 a year at the present time to operate. A department that is supposed to be self-supporting but under present conditions, under the present low rates of parcel post, and some other commodities, the government, after it has taken all of the postal receipts and expended them in postal service, is obligated to go to the treasury for a deficit of about \$50,000,000 a year.

Postal Service Costs \$6 Per Capita

Under Jefferson, the cost of operating the mail and conducting this great department was about five cents per capita. That is, it only cost about five cents for every man, woman and child in America during Jefferson's time to administer the post office department. That service grew; it was expanded in every direction until today every business man practically has his mail delivered on his desk several times a day, while the farmer in the most remote region has his mail carried to him and his letters collected once a day and that service has been going on and on until today the cost of administering the post office department has grown from five cents per capita under Jefferson to \$6 per capita.

I have here President Harding's message of a few days ago. It is the second budget under the new budget system. It was indeed strange that this great country of ours, growing as it did, developing as it did, was the only great country that had not come to a budget system. I spent some time in analyzing this budget and I want to give you a few figures to show you the soundness of the statement that I have made that we need not look in the near future for a government expenditure that is less than that which is provided for in this budget for the year ending June 30, 1924. That budget provides for an annual appropriation, excluding the postal department expenses of the government for the next fiscal year amounting to \$3,078,000,000.

Governmental Expenditures

Some will say that that is a great jump from \$1,116,000,000 in 1916 before we entered the war. So it is, but let us examine the budget and see where this increase comes from. In 1916, we had a navy that cost to operate \$150,000,000. It cost to operate the war department \$100,000,000. During the next year it is estimated that the cost of the army and navy alone will amount to more than \$625,000,000. This is a large increase; but let us remember this and always keep it in mind that this money is paid out for service; it is paid out for

materials and the government buys these in the same market that you and I must buy in. That market on account of the higher wage scale everywhere in America is substantially a higher market than it was in 1916, and this increase in cost accounts for a large part of such increase.

Of \$3,078,000,000 which President Harding says will be necessary during the next year, \$2,671,000,000 is to pay the expenses of wars that are past and of wars that may come. When we entered the World War we had a national debt, a hangover from the Civil War, of about \$1,500,000,000. Today our national debt is approximately \$23,000,000,000. The interest on that President Harding says, is \$950,000,000 or \$250,000,000 more than the total cost of the government in 1907.

To Reduce Debt \$345,000,000

Then under the law it is proposed to reduce that debt by \$345,000,000 during the next year. The soldier relief and pensions will cost \$715,000,000 and the army will require \$315,000,000 if kept on at its present size. The navy requires \$296,000,000. The shipping board, to take care of the vast tonnage of ships that were built for war purposes, in order that we might quickly send supplies and men to the other side, simply to maintain and operate that property that cost the government more than \$3,500,000,000, will require about \$50,000,000. For these war purposes, that is to pay for wars that are past and for wars to come, we must pay next year \$2,671,000,000 out of \$3,078,000,000 leaving for other civil establishments and functions of government but \$400,000,000. My own impression is that \$400,000,000 will be increased rather than decreased before the end of the fiscal year. Included in that sum is but \$33,000,000 for state cooperation in building good roads thruout the country; that sum alone will be increased, in my opinion, by at least \$60,000,000 within the next few years.

Paying Too Much on Debt

It is my opinion that we are now paying too much on the principal of our national debt, not too much if our taxes were not so high, but when we consider that for the first 50 years, after the close of the Civil War, we reduced the debt contracted by the Civil War only about 50 per cent. I submit that to now pay off the entire national debt, when all people feel the heavy burden of taxation within the next 60 years, involves too heavy a tax burden. The payment of that debt should be spread over a century and the generations yet unborn should pay their proportion of the cost of that great war.

The estimated cost of soldier relief for next year totals \$715,000,000. If we are to judge the future by the past, so far as the payment of pensions to Civil War veterans, that item will never be as low within the next 40 years as it will be next year. 50 years after the close of the Civil War we were paying more pensions to soldiers and widows of soldiers of that war than we had paid at any time prior to that date.

Army and Navy Reduced

The army and navy have been substantially reduced. The army and navy of the United States is but slightly stronger than they were in 1916, and the principal reason why it is costing more to support the army and navy is because of the high prices that the Government must pay for the things necessary to support those institutions.

Where? I ask the conservative business men of America, can we look for a lessening of expenditures? I do not believe it is possible for the next ten or fifteen years to run the Government of the United States and discharge these obligations with an expenditure less than \$3,000,000,000.

Now, where does this money come from? It comes from taxation. President Harding in this budget only gives, aside from the postal receipts, two principal items of receipts. The receipts are grouped under internal revenue and customs re-

ceipts. It is true that we receive a small amount, about \$10,000,000 of profit out of the Panama Canal. We receive now some payments for reclamation of arid lands, but we appropriate it all and more for that purpose. We receive from about \$500,000 a year to \$1,000,000 a year from the public lands. We receive a great many items of that kind, but the amount is comparatively negligible.

Receipts for 1923

The estimates of receipts for the next fiscal year from internal revenue, mostly taxes, are \$2,425,000,000 and from customs receipts, \$425,000,000. Some small items of receipts are also estimated such as the interest on our foreign debt, and sources of that kind.

We cannot with any degree of assurance rely upon receipts from abroad in the payment of obligations owing us by foreign nations. You know that we are the only country in the world today, excepting Japan, that took part in the great world conflict that is paying the interest on its national debt. Do you know that we are the only country in the world today, except Japan, that is able to raise the money by taxation to pay the current expenses of administering the government? I fear that if we are expecting vast sums to flow into our treasury from abroad and that those receipts will materially lessen our tax burden, that we are looking for a millennium that will not dawn.

Let us look at this situation briefly. When Great Britain entered the war it had a national wealth of \$70,000,000,000. When the war ended Great Britain owed a debt of \$39,000,000,000, or a national debt of more than 57 per cent. of the wealth of all her people, to say nothing of the debts of her municipalities.

France's and Italy's Condition

France entered the war with a national wealth of \$58,000,000,000. France closed the war with a national debt of \$47,000,000,000, or a debt equal to more than 80 per cent. of the wealth of all her people. Now, if you have a customer and he brings you his balance sheet and he wants to buy a million brick on credit and you see that his debts are equal to 80 per

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**"I am confident that Congress will adopt before long, some form of excess profits tax. Much as we may regret this we should look the facts squarely in the face and read the signs of our times.**

**"If I am correct in that, the wise business man of America will commence to pay more attention to the tax returns."**

**This is James W. Good's prediction after a careful study of the national situation. The foundation for his forecasting is contained in his article reprinted here. Read it and you will see why your tax-burden will not become lighter.**

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 cent. of all his wealth, you do not sell that man brick, expecting he will pay his bill when it matures. As a general rule, he cannot pay, and no credit man of any institution grants credit on any such a statement.

Italy had a national wealth when she entered the war of \$22,500,000,000, and Italy closed the war with a national debt of more than \$18,000,000,000, or a national debt almost equal to the wealth of the nation. Can Italy pay the United States?

France owes us over \$3,000,000,000 and Italy over \$1,600,000,000. Great Britain can pay and will pay, but the payment

will be slow and we cannot take very much account of that when it comes to looking with certainty upon receipts and thereby lessening taxation.

I believe that above partisanship we all ought to look once in awhile at the balance sheet of the nations. Not as Republicans nor Democrats nor Socialists, we all should look at these business propositions that affect our pocketbooks and come to our own conclusions with regard to them. We have heavy taxes and they are a burden, but let me tell you our burdens are light compared to our neighbor's. When Amer-

In this article James W. Good gives the following excellent advice to prepare your business for the coming of the excess profits tax:

"In your business you have been accustomed to doing certain things and with regard to the cost of those things—can do one of two things, maybe more than that, but at least you can do one of the two. You can charge a certain item to operating expense and take that expense out of your income before you determine what your net income will be, or you can capitalize that expense, and then, when the day comes, as it will come, when we will again have an excess profits tax, you will not be injured because your books show your true working capital."

ica entered the war her national wealth was estimated at from 225 billions to 250 billions of dollars. America's debt today is \$23,000,000,000, or only about nine per cent. of the wealth of all our people. I undertake to say that for a period of ten or fifteen years the national expenditures will not and cannot fall below \$3,000,000,000, no matter what political party may be in power. If that be true, and if the estimate of receipts as pointed out by the president is reliable, and I have found in the estimates of the Treasury Department, whether that department was administered by a secretary, under Mr. Wilson or under Mr. Harding, or any other president, are usually quite accurate, if those estimates are to be relied upon, our taxes must be about as they are now. There will be perhaps a slight lessening, but I believe that the wise conservative business man of today will realize a condition that is everywhere apparent and will read carefully the signs of the times. We were glad, I know you were, most of the business men were, when there was brought about a repeal of the excess profits tax. But I am as confident that Congress will adopt before long, some form of excess profits tax. Much as we may regret this we should look the facts squarely in the face and read the signs of our times.

Excess Profits Tax Will Come Back

There is a growing sentiment in Congress that the only way that certain kinds of profiteering can be curbed is by an excess profits tax. I wish I might paint a different story, but that is the situation as I see it.

If I am correct in that, the wise business men of America will commence to pay more attention to their tax returns. They will stop the practice of charging off things that have cost the concern a good deal of money and will commence to capitalize all such expenditures, especially in lean years. An old custom grew up with us of charging off many expenditures with the result that when the excess profits tax went on the statute books the conservative business man did not have the invested capital that he ought to have had; he had to pay the penalty in increased taxes. The man who had

capitalized everything was allowed a return of eight per cent. upon such capital before the excess profits tax commenced.

Pay Only Just Share of Taxes

Now, I am not advocating a change of policy that will permit men to evade just taxation. But my impression is that a great many men and corporations are paying taxes running into big figures that they ought not to pay at all. This year we will say your business is only fairly prosperous, you will not be called upon to pay very much tax, we will say, but you have been doing certain things and with regard to the cost of those things—can do one of two things,—maybe more than that, but at least you can do one of the two. You can charge a certain item to operating expense and take that expense out of your income before you determine what your net income will be, or you can capitalize that expense, and then when the day comes as it will come, when we will again have an excess profits tax, you will not be injured because your books do not show your true working capital. That problem arises in the business of every manufacturer, and the sooner he looks at it in a broad spirit of protecting his own interests the better will those interests be safeguarded.

It is a great mistake for the business man to stop thinking of income tax returns after he has made out his return for the year. After making out and filing such return, the next thing the successful business man ought to do is to begin the study of his accounts, study the entries upon his books, not to evade paying taxes, but in order that his taxes may only bear that proportion of the expense of administering the great Government that it ought to bear when taken into consideration with other businesses thruout the country.



CREDIT WHERE CREDIT IS DUE

In the article entitled "Synthetic versus Clay Brick," published in the December 12 issue of Brick and Clay Record, credit for the photographs was unfortunately omitted. These photographs were printed thru the courtesy of Concrete, a publication serving the cement industry.

Conventions in Prospect

- January 24, 25 and 26—Canadian National Clay Products Association and Western Ontario Clayworkers' Association, Hotel Connaught, Hamilton, Ont.**
- January 25 and 26—Hollow Building Tile Association, Drake Hotel, Chicago, Ill.**
- January—Kentucky Clay Products Association, Louisville, Ky.**
- February 5, 6 and 7—Common Brick Manufacturers' Association, Hotel Winton, Cleveland, Ohio.**
- February 8, 9 and 10—National Brick Manufacturers' Association, Hotel Winton, Cleveland, Ohio.**
- February 12, 13, 14, 15, 16 and 17—American Ceramic Society, William Penn Hotel, Pittsburgh, Pa.**

NEW LIST OF REFRACTORY BRANDS

Refractories Manufacturers' Association, Oliver Building, Pittsburgh, Pa., has just issued the fourth edition of the booklet showing brands of fire brick and other refractories manufactured by companies in the United States. The booklet lists the brands used by practically all of the manufacturers of refractory brick and is particularly useful to the man who knows the brand he wants to use but does not know who makes it. A copy will be sent free upon receipt of a written request by the Refractories Manufacturers' Association.

Should the Dealer Sell Clay Products?

If Service to the Consumer Is the Prime Incentive of the Dealer Then He Will Handle Clay Products—Producer and Dealer Must Cooperate

C. B. Platt*

The Platt Co., Van Meter, Ia.

THE CLAY PRODUCTS BUSINESS is growing. The dealer in building materials observes that the demand for clay products is increasing rapidly and every day he sees new reasons why such growth in the demand for permanent improvements materials is to his advantage. This rapidly growing demand for clay products is by no means a passing fancy. There is a strong basic reason for this demand. Permanent construction is economical. It gives the maximum in efficient and economical service and the maximum length of service with the minimum in maintenance cost. Clay products, brick and building tile, furnish the ideal material for permanent construction, particularly in the Mississippi Valley, where raw material deposits occur with sufficient frequency to permit practically every locality to secure its supply within a distance of from twenty-five to fifty miles. This condition should result in an inconsiderable part of the cost of permanent building materials being transportation costs. Another economic advantage in this condition is contained in the fact that the distributor does not have to carry a large stock of materials, thus reducing the invested capital and increasing the turn-over. Another advantage for the distributor is contained in the fact that he does not have to provide extensive storage facilities, both with respect to space and buildings and he does not have to carry such a variety of materials. At this time permanent construction has, in the majority of cases, reference only to the walls and the roof covering, so the dealer in building materials is not faced with any particularly difficult engineering questions in selling permanent materials. He is, however, compelled to overcome the opposition of the local carpenter-builder-contractor who generally believes that permanent construction will take away his occupation, or curtail it to such an extent that his idle periods will be increased. Such opposition is serious only in that it is present, since there is absolutely no foundation for such opposition. Dealers in lumber used to oppose permanent construction in a good deal the same way, since they considered themselves as lumber dealers and not as dealers in building materials. While the lumber dealer, so called, has pretty generally recognized that he will not be in the least harmed by the use of permanent materials in the walls of ordinary structures, some

of them figure that they may possibly be affected, over a period of years, because of the fact that building well done is twice done. Such fears have positively no foundation. If building and other property improvement is well done it encourages the builder to continue improvements because he sees without difficulty that the improvements pay. The dealer generally prides himself in saying that he sells what the customer asks for and does not attempt to change his ideas for fear of discouraging him and keeping him from doing anything at all. We can not quite agree with such a position, since the dealer is supposed to give service which will result in the greatest good to his customer. If he renders such service he must do more than to carry a stock which will meet the demands of the builder. He must acquaint him-

self with the claims of the producer and substantiate them and be in a position to show conclusively to the builder how he can secure the greatest return from his building investments. We are discussing this question with reference to clay products with the idea of helping along the idea of dealer distribution and with no idea at all to criticise the dealer. The problem is to establish dealer distribution thru a cooperation which will work out good for the three parties concerned. All three parties are more or less mixed up and pulling in different directions. There are many builders who believe that they would cut out the dealer's profit if they bought direct from the manufacturer and many manufacturers who believe that they can sell direct to better advantage than thru the dealer, and many dealers who believe that they can meet the problem by refusing to handle clay prod-

ucts. There are a few manufacturers who seem to think that they can hold dealer trade and sell to the consumer without any consideration of the dealer. As to the consumer's contention that he could buy direct cheaper than thru a dealer, we feel that he should consider the question in the light of a condition contemplating no dealers at all. In that case, each producer whose output was of any magnitude would have to increase his selling force several times over in order to reach enough customers to absorb his product. This would very materially increase selling cost, and we believe to an extent much greater than the percentage of dealer profit. Should production be reduced to cost, and we

There is now no greater merchandising problem confronting the manufacturer of clay products than that of distributing his products thru the dealer. True, there are some manufacturers now who sell their products in no other way, but the great majority of them sell the biggest part of their product direct to the consumer.

In this article C. B. Platt, one of the oldest and most experienced clay manufacturers in Iowa, discusses some of the essential points to be considered in the problem of dealer distribution. These questions include:

The problem of the carpenter-contractor.

The problem of establishing dealer distribution on a basis that will work out well for the consumer, the dealer and the manufacturer.

The policy of selling both the dealer and the consumer.

The cost of selling thru the dealer as compared with selling direct.

The losses incurred by the dealer who is indifferent.

And others of equal importance.

*Editor's Note—This Article Is Reprinted from the Magazine Permanent Construction Which Is Published by Mr. Platt.

(Continued on Page 976)

FINE CERAMIC MANUFACTURE



A Department Devoted to Practical Problems in the Manufacture of Higher Grade Ceramic Products Such as Whiteware, Including Electrical Porcelain, Floor and Wall Tile, Sanitary Ware, etc., as Well as Stoneware, Terra Cotta, Special Refractories and Other Articles Where High Grade Clays Are Employed in Their Fabrication.

SEARCHING FOR BETTER SAGGERS

FOR MANY YEARS one of the most perplexing problems manufacturing potters have had to contend with, has been the sagger loss. It has generally followed that when a research chemist started unraveling problems which the generalware potteries have been facing, the first on the list has referred to saggings. That research man who has worked out the sagger problem satisfactorily has generally saved his firm more than his annual fee.

While it is said to be a fact that thru the use of the sagger-making machine, losses have shown a decline, yet there have been other leaks, no matter whether saggings have been made by machine or by hand. These losses have had to do with sagger clays.

Bureau of Standards Studying Saggings

The United States Bureau of Standards has not been unmindful of this situation within the china and generalware pottery trade, and for many months the ceramic department of the Bureau has given the subject much study.

Saggings are containers employed in manufactories of china-ware for holding plates, cups, saucers and every other item made in a pottery during the firing in the kiln. These containers are made of clay which must have considerable strength and be of good refractory quality. The Bureau of Standards is conducting a thorough investigation involving a geographical study of sagger clays to classify them according to their properties, and finally to see what may be done toward increasing the life of the sagger. By increasing the life of a sagger, which means that it can be placed in a kiln a greater number of times than has been the usual rule, it is not hard to count the saving in the overhead operation of a plant, no matter what the size may be.

90 Different Clays Used

To obtain a list of the sagger clays used thruout the country, the Bureau of Standards has come forward with the information that the department sent letters to over 100 different manufacturers using these clays. In these letters request was made for the names of the clays employed, names of dealers from whom clays could be obtained, and the district where they were mined. This information was cheerfully given, so the Bureau has just announced, by a very large proportion of the concerns addressed.

So far as can be judged from the information obtained, about 90 different clays, or rather clays sold under approximately 90 different names are being used for saggings in the United States. A letter has been written by the Bureau of Standards to producers of and dealers in sagger clays to

obtain information necessary to make the list more accurate and more easily understood.

Testing Many Different Kinds

Samples of 52 different clays, representing as well as could be judged all the important types, have been sent for by the Bureau of Standards, and many of them have already reached the laboratory at Washington. These samples are being obtained in 200-pound shipments from the users, rather than from the producers or dealers in order to eliminate uncertainties as to whether samples are representative of the commercial output of the mines or pits.

Pottery manufacturers have been contributing these rather large samples from their own stocks, and in addition the shippers have in every instance prepaid the freight to Washington. This incident serves to illustrate the whole-hearted manner in which the industries are responding to the call of the Bureau for assistance in its investigations, which will ultimately result in such great benefit to the manufacturers.

Subject Clays To Five Tests

In order to classify the sagger clays according to their properties, the Bureau of Standards has announced that they are being subjected to the following tests: Water of plasticity, shrinkage, porosity, transverse strength, and burning behavior at five different cones. The Department has done some work upon all the clays received and in getting this work under way considerable attention has been given to details of test methods.

It has been considered very necessary by the Bureau, in order that the results of these tests may be of value, to devise where necessary, methods, or modification of methods which will insure greater accuracy than is usually attained in such measurements.

This involves the elimination of sources of variation all along the line in order to obtain close checks in the final results. As this is a feature which justifies closer attention than it has received up to this time from ceramic industries, it is now proposed by the Bureau to include in the final report of this very interesting investigation not only averages but maximum departures from these mean values.



LESS WARE BEING IMPORTED

For nine months of 1921, ending October 1 last, the value of ceramic ware received in the United States from foreign plants was valued at \$9,327,353, and the record for the same period in 1922 is placed at \$8,489,313. This is a drop of \$838,040.

At the time this report was completed, the generalware plants of the United States were forced into idleness because of the strike in the industry. With importations on the decline, and practically no shipping being made the trade by the American pottery manufacturers, stocks in the hands of distributors, therefore, must of necessity be rather low.

During the nine month period, Germany shows a gain in the business done in this line with American receivers. In 1921, for nine months, Germany shipped ware to the

United States to the value of \$3,441,347, and for the same term this year its record is placed at \$3,723,860, a gain of \$282,513.

England made greater gains in shipping American importers during the first nine months of this year than all other countries, its total business having a valuation of \$3,723,860. For the same period in 1921, England shipped ware to the United States having a valuation of \$2,442,056, a gain made in the nine months of 1922 of \$1,301,804.

For the nine months of 1921, ending October 1, Japan shipped American receivers wares valued at \$3,015,257, and for the first nine months of the current year this business had a valuation of \$1,855,426, or a loss of \$1,159,831.

France is shipping only a nominal amount of ware to the United States, compared with its sales previous to the recent war. However, that country is making some slight gains in its export business to this country. During the first nine months of the current year France shipped wares to the United States valued at \$252,024, and for the same period in 1921, its record stood at \$662,339, or a loss for the three-quarter term of \$137,315.

* * *

75% OF ENGLISH CLAY USED FOR PAPER

So large and profitable is England's industry in china clay becoming that there are now around 70 firms operating plants in the little counties of Devon and Cornwall, the exclusive home of this much sought after medium. Deliveries of china clay from these Western counties for the trade at home and abroad total 605,250 tons for the last ten months. For the corresponding ten months in 1921 total deliveries were 273,400 tons. Of this year's output of clay five large shipments went to the U. S. A. and Canada. The largest importers of china clay were the Netherlands and Scandinavia. They took ten cargoes. France took nine, Belgium five and Spain three.

The enormous growth of the paper industry is responsible for the trebled output of the Devon and Cornwall clay plants. The demand in the U. S. A. for clay surfaced paper is considerable. Paper makers are using 75 per cent. of the china clay produced in the counties mentioned. The remaining 25 per cent. is absorbed by the pottery folks. The clay is a pure white and unobtainable anywhere else in Europe with the exception of Czecho-Slovakia.

In conjunction with this china clay there is a species of it known as china stone. This really is a form of petrified china clay and is worked in quarry fashion, being in great demand by makers of enamel hollow ware. There are four grades of this stone—hard purple, medium purple, white and buff. The hard purple is the quality most in demand owing to its high vitrifying qualities. It is much in request by the manufacturers of hard porcelain and is used extensively by foreign potters in the body and glaze of wares, and by enamellers. This china clay stone is produced only in Cornwall, where the present rapid growth of the industry is producing a welcome boom.

* * *

POTTERS PROBABLY MEET IN JANUARY

Altho T. A. McNicol, president of the T. A. McNicol Pottery Co., of East Liverpool, Ohio, chairman of the Executive Committee of the United States Potters' Association, has not indicated the time and place for the annual meeting of the Potters' Association, it is very likely that the sessions will be held some time in January at Washington. The Hotel Willard is expected to be selected for the headquarters, as was the case last year.

At least one-half day will be spent by the members of the association in visiting the Ceramic Department of the United States Bureau of Standards, during which time it is

believed some interesting problems will be worked out on the blackboard in the lecture room.

* * *

STRIKE COSTS WORKERS MILLION

Every interest connected with the recent strike in the generalware pottery trade, lost money. The quarterly report of the National Brotherhood of Operative Potters, just issued by its secretary-treasurer, John McGillivray, shows over \$500,000 was distributed by the organization in strike benefits. The benefits were \$10 per week to those workers in good standing, with their local unions. Thousands of unorganized pottery workers received no return from the brotherhood.

The pottery workers lost over \$1,000,000 in wages during the ten weeks' strike, and the manufacturers more than double that amount in possible sales.

* * *

FORM \$100,000 DECORATING COMPANY

Charles B. Smith, formerly of East Liverpool, Ohio, and for years associated with decorating departments, but who has been located in Sebring, together with L. C. Cook, general manager of the Manufacturers' Sales Co., of Alliance, Ohio, has formed a new company which will engage in the decorating of both domestic and imported whiteware and also glassware.

The new company is to be an enlargement of the Manufacturers' Sales Co., and has been formed with a capital stock of \$100,000. Aided by the Chamber of Commerce of Alliance, the company will erect a one-story building, 85 by 200 feet on a site between Sebring and Alliance, construction upon which has started. The building is expected to be ready for occupancy by January.

When operating full time, the new plant will employ perhaps between 75 and 100 decorators. Two double decorating kilns are to be built as an initial unit, but four more will be added later. Mr. Smith will have charge of the production end, while the sales department will be in charge of Mr. Cook.

* * *

SEBRING TO SPEND WINTER ON COAST

Oliver H. Sebring, head of the French China Co., and also the Limoges China Co., at Sebring, Ohio, has gone to California, where he will spend the winter season on business. Early in the spring, Mr. Sebring plans to start an exclusive decorating shop in Sebring, from which exclusive border decorated dinnerware will be marketed.

* * *

H. A. McNICOL RETURNS FROM EUROPE

Harry A. McNicol, president of the Potters' Co-Operative Co., of East Liverpool, Ohio, who has been spending several months in Europe making a study of business conditions, has returned to his desk. The journey also served as a wedding trip, as Mr. McNicol wed just a few days before he sailed with his bride.

* * *

FORM VILEY ART POTTERY

The Viley Art Pottery Co., of Cambridge, Mass., has been chartered with a capital of \$10,000 to manufacture art pottery of all kinds. Incorporators are W. A. Hunt, W. B. Hoyt, George Harris, Bertha Hunt and Josie Harris.

* * *

STANDARD BUILDING ADDITIONS

The Standard Sanitary Mfg. Co., Bessemer Building, Pittsburgh, Pa., will commence the erection of an addition to its

branch plant at Louisville, Ky., comprising a one-story building 56 x 325 feet, to be used for enameling and other kindred service. It will be located at Sixth and Shipp Streets, and will be equipped to provide an increase of about 20 per cent. in capacity, giving employment to about 125 men. It is expected to have the new building ready for service early in the spring, at which time the entire working force at the plant will be advanced to close to 500 men.

* * *

SELLS MUCH YELLOWWARE AND ROCKINGHAM

Thruout the fall and early winter season the demand for yellow and Rockingham ware has been exceptionally good. Those plants in the Zanesville, Ohio, district featuring the line have been making steady shipments, and while the generalware pottery strike prevailed, the D. E. McNicol, eleven-kiln yellowware shop in East Liverpool, never lost a day. Just one kilnman and one dipper left the McNicol shop when the generalware strike became effective, and these vacancies were soon filled by others. The eastern and southern trade have been active buyers of this line of merchandise.

* * *

WESTERN ASS'N TO MEET IN PITTSBURGH

The annual meeting and banquet of the Western Glass & Pottery Association will be held in Pittsburgh, Pa., January 19, 1923. The business meeting will be held in the Ft. Pitt Hotel, while the banquet will be featured in the dining rooms of the Kaufmann Department store. Ballots for the referendum election of officers for the association for the 1923 term have just been forwarded by Secretary Watson W. Lang, from his office at Cambridge Springs, Pa.

* * *

HOMER KNOWLES TO START PRODUCING

During his trip east to Pittsburgh, Pa., a fortnight ago to attend a special meeting of the United States Potters' Association, H. H. Knowles, head of the Homer Knowles Pottery Co., of Santa Clara, Cal., announced that the new three-kiln shop is ready for operation. All machinery has been installed and two kilns of saggers are ready to be fired off. Mr. Knowles visited the East Liverpool pottery district, his former home, and while there arranged for a number of generalware workers to become associated with him in the operation of this new shop. Production will start at Santa Clara at once.

* * *

HOPEWELL BUILDS NEW DECORATING KILNS

During the idle period, occasioned by a strike of the generalware pottery workers of the United States, the Hopewell (Va.) China Corporation added a double decorating kiln to its battery, and now has six. Since this plant has been under the management of A. J. Strikow, formerly of East Liverpool, Ohio, the capacity of the shop has been almost doubled. In addition to marketing a general line of dinnerware, the company is also featuring a number of specialties, such as breakfast sets, cake sets and chocolate sets, all done in different decorations.

* * *

C. W. FOREMAN LEAVES OWEN CHINA

Charles W. Foreman, president and general manager of the Owens China Co., resigned his position recently, according to an announcement. Arthur F. Calerdine of Minerva, Ohio, has been chosen his successor. Mr. Foreman was connected with the company for the past 17 years, coming to Minerva from Pittsburgh, Pa., in 1905. He was chosen general manager of

the firm in 1909 and a short time later was elevated to the presidency. According to reports, he is planning the erection of an 11-kiln generalware pottery for the Eastern Ohio district within the next six months. Mr. Foreman refrains from commenting upon his future plans.

It is said in the Minerva district that since Mr. Foreman retired from the Owen China Co. his friends have importuned him to erect another plant, contending that his success with the Owen company would be duplicated in any similar venture.

"I have no statement to make whatever," Mr. Foreman said when he was asked if he were planning the erection of an 11-kiln generalware plant. "I'm just casting 'round and that's about all I can say."

* * *

FLORENTINE POTTERY SOLD

The land, building, machinery, materials, chemicals, shop and office fixtures of the Florentine Pottery Co., in East Cambridge, Ohio, owned and operated by the Pfau Manufacturing Co. of Cincinnati were sold at a trustee's sale to E. S. Romaine of Wheeling, W. Va., for \$50,000. The property was appraised at \$75,000.

* * *

APPOINTS WEST COAST REPRESENTATIVE

The Paden City (W. Va.) Pottery Co., manufacturers of white-lined cooking ware, has appointed the Homer Knowles Sales Co., of the Furniture Exchange Building, San Francisco, Cal., as its Pacific Coast selling agents. A full line of the products of this plant will be hereafter displayed on the coast, under the management of W. J. Lee, formerly of Chicago, Ill., and who has just left for San Francisco.

* * *

FIND POTTERY CLAY AT PITTSBURG, KAN.

Firing and glazing possibilities of clay found near Pittsburg, Kan., are being tested by the Fine Arts School at the University of Kansas. It is thought that the clay might be valuable for modeling purposes and for use in pottery manufacture.

* * *

PHILADELPHIA POTTERIES BUSY

One of the results of the tremendous boom in building at Philadelphia is the increased demand for pottery. Most plants in the Philadelphia district are operated at from 90 to 100 per cent. of capacity. Practically all of this material is manufactured on order and little is going into stock.

* * *

CAMDEN BUILDING ADDITION

Additions to the Camden (N. J.) Pottery Co. are being made. A contract was recently let for a two-story building, 70 by 140 feet.

* * *

ESSEX TILE CRAFT INCORPORATED

The Essex Tile Craft, Inc., Newark, N. J., has been incorporated under state laws with a capital of \$50,000 to manufacture ceramic tile products. The company is headed by Leo E. Goddu and William G. Anderson, 241 Summer Avenue, Newark.

* * *

ALLENTOWN PLANT BURNED

The building of the Allentown (Pa.) Crockery Co., housing this company and other industrial concerns, was destroyed by fire, November 21, with loss estimated at about \$350,000.

Management and Superintendence

A Continuation of Digests of Proven Plant Betterment Ideas—Suggestions for Overcoming Difficulties

HEAVY CONCRETE PIERS FOR SHAFTING

A great many clay products plants are troubled more or less with their shaft bearings. Unequal settling of the foundations supporting the shafts is also a source of annoyance. This always causes friction, added expense for power and reduced production. The National Clay Works at Mason City, Ia., has overcome this difficulty by placing their shafting on heavy concrete piers which vary from 12 to 20 feet in height. The illustration taken from an elevation shows one of these concrete piers. The girders supporting the track from the pit are shown at the top.



One of Several Piers Which Have Proved the Economy of Proper Construction at Mason City, Iowa.

THREE FLOOR TRACK DRYER

A three floor dryer house has been used by the Hawkeye Clay Works of Fort Dodge (Ia.) to insure full production of their eight kilns. The ware is loaded on cars at the machine, and stays there until set. The lower floor of the dryer consists of 12 tracks, and is heated by waste heat from the kilns. The second floor has 12 tracks and the third, 11. Heat escaping from the waste heat dryer and heat from steam pipes dries the ware on the second and third floors. There is an added expense for elevating the ware to the upper floors and then taking it down again. This added expense, however, is justifiable in order to insure full production. The situation of the plant and buildings prevents adding to the ground area of the dryer, and the second and third floors offered the only solution.

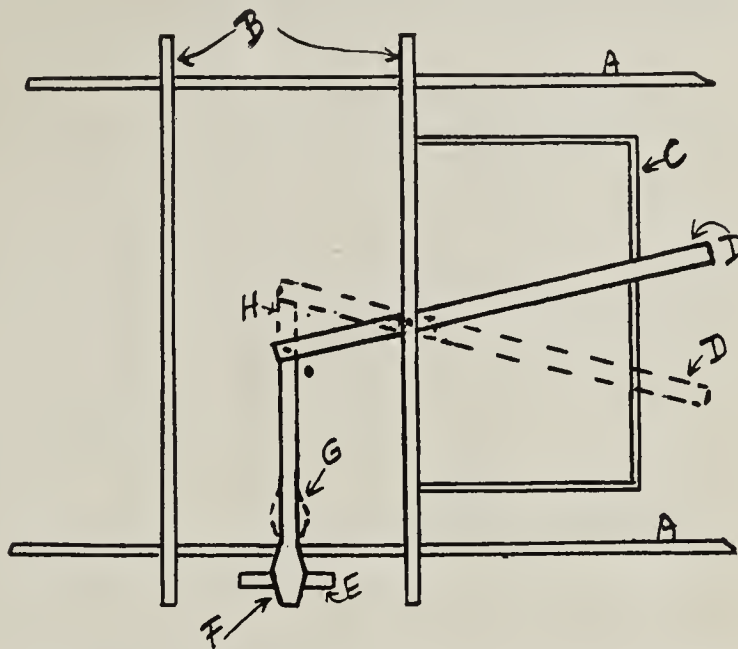


Three Floor Dryer Showing Elevator Which Provides Access to Upper Floors.

TRANSFER CAR LOCKING DEVICE

In transferring cars onto or from a transfer car, it is always necessary to lock the transfer car in place, either by

a metal latch or by wooden blocks. Quite frequently these attachments are at inconvenient points, and not used, resulting at times in wrecks which are costly and delay produc-

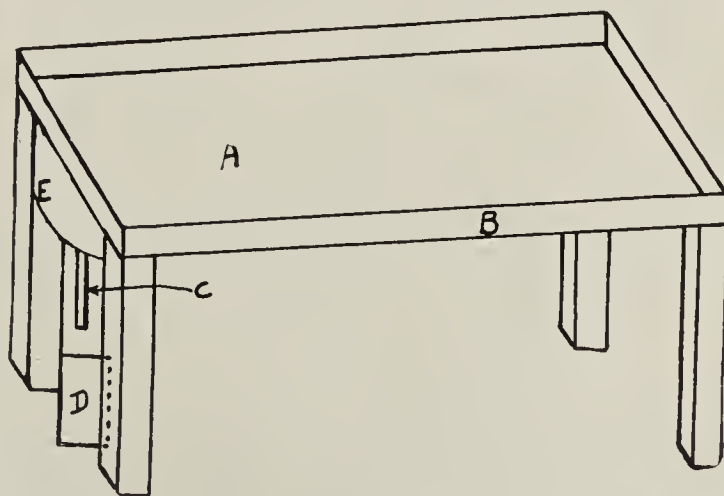


Plan of Transfer Car Locking Device. A is the Track on Which the Transfer Car Moves. B is the Dryer Car Track. C is the Pipe Frame Handle for Pulling or Pushing the Dryer Car. D Shows Two Locations of the Lever for Locking the Car, the Solid Lines in Locked and the Dotted Lines in Unlocked Position. F and G Show the Two Positions of the Catch Locked and Unlocked in Regard to the Strap E.

tion. The Rockford (Ia.) Brick & Tile Co. has a locking device which is operated from the handle of the transfer car, making it easy to throw the latch and eliminating any excuse for not doing so.

MIXING OIL WITH FLOWER POT CLAY

The manufacture of flower pots requires that oil be mixed with the clay to lubricate the mold and prevent the clay



Isometric View of Bench for Insuring Proper Mixture of Oil and Clay.

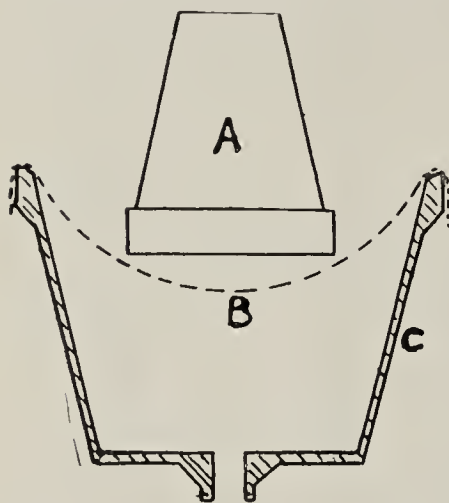
sticking. Too little oil does not lubricate sufficiently, and too much oil makes the balls of clay too soft.

W. P. Conaway, factory manager of the Western Pottery Co., Denver, Colo., has evolved a bench which enables him to mix the proper proportion of oil and at the same time to drain off the excess. In the illustration A is the tray of the bench

which is provided with a metal bottom. This metal bottom is curved in the way shown at E on one end and is fastened to the top of the bench at the other end. The balls of clay are put into this circular bottom and sprinkled with the oil from a two gallon can. On account of the inclined tray the excess oil flows out of the pipe C into can D. B is the box or frame about three feet wide and four feet long. It is made of 1x6 lumber, with the legs of heavier material.

LEVELING FLOWER POT TOPS

The tops of flower pots are almost always rough on account of a flange formed by the clay squeezing out between the two parts of the mold. This becomes quite noticeable when



Section Thru Revolving Head Showing Location of Flower Pot Being Dressed Off.

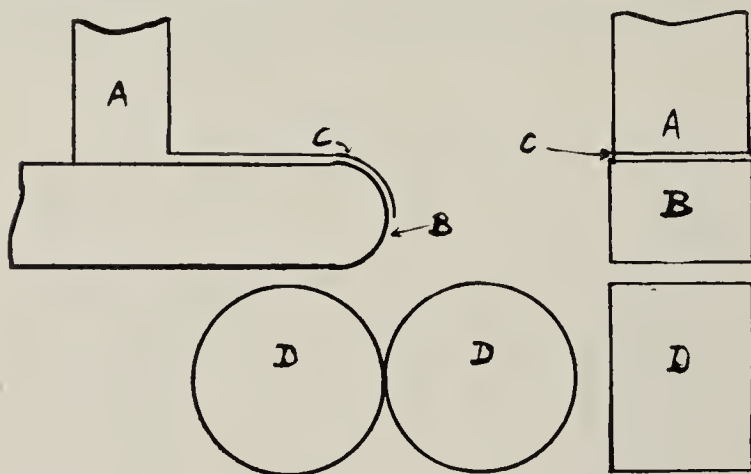
the mold wears. W. P. Conaway, factory manager of the Western Pottery Co., Denver, Colo., overcomes this by the method shown in the illustration. C is a circular casting about 12 inches in diameter and driven at about 250 r. p. m. B is the top of the revolving head. This can be of cast iron made as one piece with C, or can be formed of plaster of Paris and covered with fly screen clamped down on the outer edge of C, with a hoop or band.

Holes for taking care of the clay dressed off the pot must be provided thru B and near the bottom of C.

The pot to be finished is lightly touched to the revolving head.

FEEDING SHALE UNIFORMLY TO BELT

The tailings from dry pan grinding are fed onto a belt and thence to a small pair of crushing rolls at the plant of the Adel (Ia.) Clay Products Co. Since this shale is hard it is necessary to provide uniform feed across the face of the



Side View and Front Elevation of Belt Feeder and Rolls. A is the Hopper Containing Tailings from the Screen. B is the Conveyor Belt. C is the Layer of Tailings on the Belt. The Rolls are Indicated by D.

roll to insure even wear. This is done by means of the belt spoken of above. A hopper is built just above the belt where the tailings feed onto it. A gate is provided on one side of this hopper to insure the same height of material across the entire face of the belt. This arrangement insures uniform feed at all points of the roll crusher, so that the wear is uniform.

USES DAMPER HEIGHT REGULATOR

The plant of American Vitrefied Products Co., at Barberton, Ohio, has a very efficient damper height regulator. A piece of flat iron with holes at frequent intervals is fastened to the stack.

The damper is hung on a hook which is of a definite length, and one part of it is bent to form a handle. By

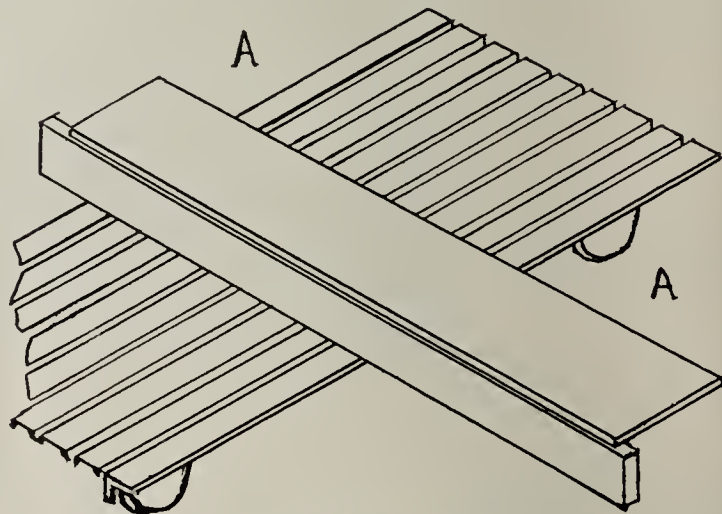


Damper Regulator Attachment Fastened to Stack. It Is Easy to Tell the Draft Opening.

means of these conveniences the height of the damper can be changed very easily. Another advantage is that the superintendent or head burner can tell almost at a glance the height of the damper in every case. This is an important item in burning salt glazed ware.

OFFBEARERS' WORK MADE EASIER

The L. W. Camp Co., of Akron, Ohio, has a unique and unusual arrangement at the offbearing belt. The dryer cars are single deck with no supports or arms extending above the level of the deck. This construction permits the car to pass beneath the offbearing belt as shown in the accompanying illustration. The two men stand at the points



Dryer Car Passing Beneath Offbearing Belt at L. W. Camp Co. The Car Is Moved Along the Track as It Is Loaded.

marked A, and it can readily be seen that their movements are reduced to the minimum as they must turn only a quarter turn. Naturally they are able to handle the ware with the very least damage in the handling. The car is moved along the track as it is loaded. The ware, hollow tile, is placed on the car two high, but no deck is used.

Cyclopedic News

Devoted to Enlarging the Usefulness of the CLAY PRODUCTS CYCLOPEDIA

Published by
INDUSTRIAL PUBLICATIONS, Inc.

407 S. DEARBORN STREET
CHICAGO, ILL.

ITEMS MOST INTERESTING TO SUPERINTENDENTS

This list is a continuation of those items covered under the same heading in our last two issues. As explained before, these items are intended to cover only the main points for which a superintendent is responsible, or for which he is expected to furnish the information.

We wish also to mention again that these items are taken only from the statistical section as the items in the definition section can easily be found, since they are arranged alphabetically.

See page

The amount of water required by condensing engines 162

One of the big items in installing any system of piping is the amount of expansion for which to allow. This is covered fully in table on 168

An accurate test for determining whether a certain piece of metal is steel or wrought iron..... 196

It is often difficult to determine the exact size of elevator bolts for a given size of belt and bucket. To assist in this calculation we have two tables 166

Capacities of open and closed feed water heaters, and savings to be effected by their use..... 176

Accurate method for determining whether or not a steam trap is leaking steam 196

This special index of items that are peculiarly applicable to the superintendent or others in the operating department will be continued in our next issue.

SUGGESTED TEST FOR SPALLING OF FIRE BRICK

The method for testing fire brick for spalling as proposed by the American Society for Testing Materials is shown in detail on page 169. Refractory manufacturers should study this proposed test and suggest any changes that they have in mind to the A. S. T. M.

The manufacturers of refractories

should be interested in the final wording of this test just as much as the users, in order to prevent the adoption of too severe a test.

Furthermore those manufacturers who sell refractories that are subjected to spalling actions should have their ware tested according to these specifications in order to locate their weak points. Then a diligent study should be made of every possible means of improving the quality.

WHAT THE EMBLEM SIGNIFIES



This monogram or emblem appearing in any advertisement in a periodical is an index or indication that the advertiser's catalog appears in the Cyclo-

pedia. A number directly beneath this monogram denotes the page of the catalog.

EXTENSIVE EXPLANATION OF CAUSES OF DIE TROUBLES

The quality of every clay product that uses a die when made by the stiff mud process, including drain tile, common brick, fire brick, hollow building tile, face brick and paving brick is governed and controlled by the construction of that die and by a number of outside influences. An item starting on page 35 entitled "Die, Factors of Operation," devotes two and a half pages to a thoro elucidation of this important, and at times, troublesome and costly feature.

ONE COPY NOT SUFFICIENT

INCORPORATED 1882

MASSILLON STONE & FIRE BRICK CO.

"CORUNDITE"

R. P. DUFF, PRESIDENT
FRANK KITZMILLER, VICE PRES. & TREAS.
C. A. HARMEIER, SECRETARY
T. C. EAYRS, GENERAL MANAGER

FIRE CLAY REFRACTORY PRODUCTS
ORIGINAL MANUFACTURERS OF
REFRACTORY ALLOYS

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FACTORY
MASSILLON, O.
TELEPHONE 127

Industrial Publications, Inc.,
Chicago, Ill.

Gentlemen:-

It was our intention some time ago to remit the \$5.00 covering the Clay Products Cyclopedic which you sent us recently. This is a highly creditable assembly of facts and if our feeling in the matter is universal you ought to have as much work as you can handle supplying the demand.

We are enclosing our check and voucher No. 8331 in payment of the copy which you sent to the company and I am also enclosing my personal check No. 170 for \$5.00 with the request that you mail to me under personal cover another copy of that book.

It might be interesting to you to know that for many years I have acquired something approaching a library from extracts and clippings taken from Brick and Clay Record. I find this scrap book to be a very convenient reference and it is very pleasing to have more recent items of that nature published in convenient form.

Yours very truly,

MASSILLON STONE & FIRE BRICK CO.,


Gen. Mgr.

L E: L

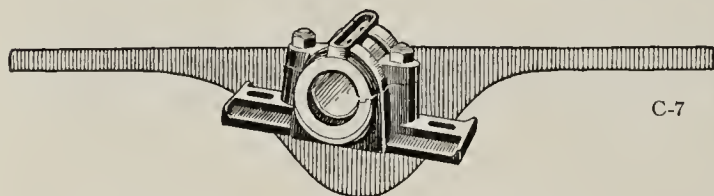
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CALDWELL



Questions and Answers

Best Authorities in Every Clay Working Branch Are Called Into Consultation—Their Advice Is Free to You, Thru These Columns

Address all communications intended for this department to "Editor Questions and Answers, care of Brick and Clay Record," Chicago

COMPARATIVE COST OF DRYERS

1,058. Iowa.—*Would you please tell me which is the most economical dryer of the three types for a three or four kiln plant—waste heat, steam or radiated heat? We have a 12-track steam dryer and have never met with good results with same. Coal is very high in this country, especially domestic. I cannot help but think we are wasting too much coal in drying by the steam method as so much heat is lost in converting into steam. Would thank you very much if you will answer the above questions.*

It does not seem to us that you can consider a waste heat dryer for a three or four kiln plant. One of the requisites for the successful operation of a waste heat dryer is an ample supply of heat. Ordinarily a kiln will not supply sufficient heat for drying for a longer period than two days after the fires are out. On a small plant the heat supplied to the dryer would be intermittent, that is, one day it would be very high, the second day good, and the third day poor. With the four-kiln plant, we believe that you would be forced to use the waste heat from one kiln at least three days and the temperature on the third day would be too low to accomplish any drying. If it took 16 days to turn your kilns the condition would be still worse.

There is another point in favor of steam over radiated heat dryers, that is, for the tender quality of some clays. The high temperature of the waste heat dryer causes some clays, of the nature found in some parts of Iowa, to crack so much that the dryer loss becomes excessive.

You speak of the high cost of producing steam on account of the price of coal. The use of exhaust steam costs practically nothing, so that really the only cost to be charged to drying, is the live steam at night. We believe that the steam dryer is best for your condition, judging from the information given us.

We would suggest that you read the item on page 786 of our November 28 issue, which explains the use of a fan to assist in the water-smoking operation. You may be able to adapt this installation to your plant.


We also have in preparation an article describing a plant in Pennsylvania, which takes all of the products of combustion from the kilns thru cast iron pipes placed beneath the dryer tracks and exhausts them thru the dryer stack. Two fans assist the travel of these gases. We do believe that this latter type of installation could be adapted to your plant and we suggest that you watch our pages carefully for this article. It will appear in a very short time.

One other suggestion: It seems that possibly you do not require 12 tracks to dry sufficient material for four kilns. Would it be possible to shut off about four tracks, thus concentrating the heat in eight tracks, obtaining a higher heat and drying as much ware at a reduced cost?



INCREASING CAPITAL STOCK

The Oliver Springs (Tenn.) Brick Co., operating a large plant, has filed a petition in the federal courts for permission to increase its capital stock from \$60,000 to \$75,000.



Rubber Goods

for the Clay Industry

Test Special Rubber Belting
Indestructible Conveyor Belting
Elevator Belting
Fire Superheat Sheet Packing
Indestructible Sheet Packing
Cobbs Piston Packing
Steam Hose Water Hose
Pump Valves

NEW YORK BELTING & PACKING CO.

New York Boston Chicago
Philadelphia St. Louis Pittsburgh
 Salt Lake City
 San Francisco

Drawn from the Kilns

Being Brief Mention of a Host of
Interesting Happenings in the Varied
Fields of Clay Manufacturing

W. BURKE, OLD TIMER, DIES

William Burke, for many years a brick manufacturer in Brewer, Me., who retired some years ago, died at his home in that town recently, aged 85. He was owner and manager of a brick plant in Brewer for 32 years.

DEATH TAKES HUGH O'BRIEN

Hugh O'Brien, 77 years old, prominent in the brick industry in Bangor, Brewer and Skowhegan, Me., died recently in the latter town. He engaged in the brick manufacturing business in Brewer many years ago, retiring from active work a dozen years ago. He leaves a sister and several nieces.

PREMATURE BLAST INJURES W. MORSE

William Morse, foreman of the Parker-Russell Clay Plant in Wellsville, Mo., was severely injured while at work at the plant. Morse was preparing to "make a shot" when one of the several that had been set, went off prematurely, because of a short fuse. He received three broken ribs and bad bruises and cuts on his head and face. It will be some time before he is able to go back to work.

THOMAS JOHNSON, PIONEER, DEAD

After reaching the ripe old age of 91 years death claimed Thomas Johnson, of Apollo, Pa., near Pittsburgh. Mr. Johnson was first associated with the brick industry in 1863 when he organized the Apollo Fire Brick Co. Associated with him in this enterprise were James M. and M. C. Taylor and Thomas and Andrew Carnegie. Later he became connected with the Climax (Pa.) Fire Brick Co., and stayed with this organization until 1903 when he built and operated the Apollo Silica Brick Works. He retired from this company and active work in the industry in 1910. Mr. Johnson was truly one of the industry's pioneers and his death is mourned by many men in the industry.

WILL OPERATE ALL WINTER

The Birmingham Hollow Tile Co. of Ensley, Ala., is being operated on full time, and has booked a sufficient number of orders to keep the plant busy all winter and until well up into the spring. This company is shipping hollow building tile all over the South for business structures and residences. One order alone totals 75 cars of hollow building tile which are to be delivered during the winter.

THRESS INCREASING CAPACITY

The Thress Brick Co. has been organized and incorporated at Tuscaloosa, Ala., with \$25,000 capital, the company being an established enterprise already operating a brick plant in that city. The incorporation was for the purpose of providing additional capital to enlarge the plant and expand the business, and this work is to be started at once. The enlargement will include six permanent round up-draft kilns and ten large dry sheds with a capacity of 600,000 brick. Orders have been placed for considerable additional machinery and equipment that will increase the capacity of the plant. Officers of the company are H. Jones, president; J. H. Thress, vice-president and general manager; G. A. Swim, secretary, and C. B. Moore, assistant secretary. Mr. Jones is also named treasurer.



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WOULD YOU LIKE TO
MAKE BETTER
BRICK
?

USE R. & H. PRECIPITATE CARBONATE OF BARIUM TO PREVENT SCUMMING AND THEREBY PRODUCING BRICK THAT ARE RICHER AND DEEPER IN COLOR, CLEANER AND CLEARER IN APPEARANCE.

IF YOU ARE TROUBLED WITH SCUMMING, WRITE US TODAY FOR CIRCULAR.

THE
ROESSLER & HASSLACHER
CHEMICAL CO.,

NEW YORK

CHICAGO
BOSTON
PHILADELPHIA

TRENTON
NEW ORLEANS
PITTSBURGH

KANSAS CITY
CLEVELAND
SAN FRANCISCO



SALEM

ELEVATOR BUCKETS

No. 668 (Rear View)
A heavy duty bucket. Material overlaps—doubly thick at bottom, corners and back. Solidly stamped and riveted together.

No. 196
Low front—handles damp materials easily. Shallow depth allows quick discharge.

No. 133
Acute heel shelf bucket with beveled end.

SALEM Buckets have led competition for half a century. A size and type for every requirement in stock—or promptly made up to order.

All the biggest buyers say "Salem" and get the strongest built bucket on the market.

[Send for price list]

MULLINS

BODY CORPORATION

101 Mill St. Salem, Ohio

CARPENTERIA MAKING FIRST WARE

The Carpenteria (Cal.) Clay Products Co. has turned out its first batch of brick and hollow tile. It is said to be equal to any of the products of the state.

RICHMOND PERMITS USE OF HOLLOW TILE

At a meeting of the Richmond, Cal., building council recently it was decided to amend the building ordinances and codes to permit the use of hollow tile as a building material. This will open the residential field in Richmond to the hollow tile manufacturer since the new ordinances permit the use of tile in residences as well as business blocks.

CRAYCROFT COMPANY BUSY

F. J. Craycroft, of the Craycroft Brick Co. of Fresno, Cal., reports that the Fresno brick manufacturers and shippers have held their own during the past year. This is really saying a good deal, as several considerable plants have been started within the territory formerly served by Fresno. It shows that the total output used has been much greater than ever before.

TAKE R. R. CROSSING FROM COMPANY.

An order of the public utilities commission for the elimination of the railroad grade crossing at Clayton, so-called, in the town of Newington, will affect the Murray Brick Co. plant, which is on both sides of the road, since it is the intention to get rid of the crossing by bridging over the tracks. The brick yards about the railroad as well as the highway. The company is undecided regarding its plans.

CONNECTICUT COMPANY TO BURN WITH OIL

Wilson A. Spiers and Paul H. Spiers of Boston, owners of brick plants in New Hampshire, and Frederick M. Hall of New Britain, owner of the J. H. Connolly brick plant in Berlin since 1920, have associated as the Hall-Spiers Brick Co. and have been incorporated under the laws of Connecticut with a capital of \$75,000 fully paid. Mr. Hall is president; Wilson Spiers is treasurer; and Paul Spiers is secretary.

Owing to the unwarranted price now being asked for wood, following the prevailing high price asked for coal, oil fuel burners for burning brick will be installed for experimental purposes. This is the first attempt in Berlin to burn brick with oil as fuel, altho it has been tried in other parts of Connecticut. If the experiment is successful the installation will be made for the entire plant. The capacity of the yard is one million brick monthly.

INCORPORATES FOR \$100,000

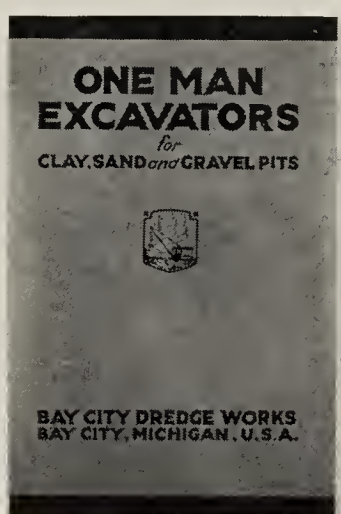
William M. Conrad & Co., Inc., Wilmington, Del., has been incorporated with a capital of \$100,000, to manufacture tile, terra cotta and other burned clay products, it is reported. The incorporators are W. M. Conrad, B. M. Odum and W. B. Rowe, all of Washington, D. C. The company is represented by the Colonial Charter Co., Ford Building, Wilmington.

CAR SHORTAGE NO MORE ACUTE

Atlanta, Ga., manufacturers state they are experiencing little or no trouble any longer with the car shortage, advising that the situation now is rapidly approaching normal and will be normal by the early part of 1923. In a few isolated instances of plants on short line roads some trouble is being met with, but as a whole the industry is obtaining nearly all of the cars it requires.

HOOD PREDICTS BRIGHT 1923

Presenting many important facts and figures relative to the development of the South, and showing many reasons why a continuation and an increase in prosperity may be expected



☐ This new book mailed to you free in the interest of plant betterment.

☐ Write for your copy today.

No obligation

The Complete Story of the One Man Excavator

The Digger Developed For The Average Sized Brick and Tile Plants

The machine that digs, loads and mixes enough clay, for a capacity of 25,000 to 100,000 per day at an average cost of \$8.00 per 10 hours. An excellent machine for stripping. Saves enough over hand labor to more than pay for itself in a short time, besides improving your ware thru a better mix. Caterpillar or track mounting, gasoline or electric power.

The whole story is told in our Catalog E, which is yours, for the asking.

BAY CITY DREDGE WORKS
BAY CITY, MICH.

in Atlanta, Ga., and thruout the district, B. Mifflin Hood, pioneer brick manufacturer of Atlanta, and an official of the American Face Brick Manufacturers' Association, recently delivered an important address before the members of the Atlanta Builders' Exchange, predicting one of the most prosperous construction years in 1923 the section has yet known.

PLAN TO INCREASE CUBAN TRADE

Under the auspices of the Atlanta and Chattanooga Chambers of Commerce a group of several manufacturers and jobbers of the two cities will make a trade trip to Havana, Cuba, some time in February for the purpose of bringing about a further expansion of trade relations between Southern industry and the island. During the past few years Atlanta manufacturers have built up an export business with Cuba well in excess of \$1,000,000 per year. Brick is one of the principal manufactured products of the section exported to Cuba.

ATLANTA PLANTS SOLD FOR 30 DAYS

Brick and burned clay products demand in Atlanta, Ga., and over the Southeast has remained substantially unchanged for the past month, with a majority of the larger plants sold about 30 days ahead on the average, tho for some items plants are sold as far ahead as 60 to 70 days. This will insure steady operations well into the new year, and there appears to be very little prospect of any slackening of demand for some months to come, leading manufacturers in Atlanta advise. Practically all of the plants seem to be operating now virtually at capacity with all the business they can well handle.

ATLANTA WANTS NEXT A. F. B. A. MEETING

Atlanta brick manufacturers, dealers and civic organizations advise that they are going to make a determined effort to secure the 1923 annual meeting of the American Face Brick Manufacturers' Association for Atlanta, and will work in concert between now and next July with this end in view. The meeting place is to be selected at a special conference next July.

At the recent convention in West Baden, Ind., of the seven larger dealers and manufacturers having headquarters in Atlanta, six were represented as follows: V. H. Kriegshaber & Sons; B. Mifflin Hood Brick Co.; Southern Brick & Tile Co.; Keeling & Cassidy; Cromer and Thornton; F. G. Williams Brick Co.

The following telegraphic invitation signed by Governor Hardwick, of Georgia; Mayor James Key, of Atlanta; Fred J. Paxon, president of the Atlanta Convention Bureau; and other prominent heads of civic and commercial organizations, was read at the West Baden meeting:

"Atlanta extends a cordial invitation that the American Face Brick Association hold their 1923 meeting in the convention city of Dixie. Excellent railroad facilities, ample hotel and rest room accommodations, meeting hall furnished free, splendid climate with average temperature of 61 degrees. A hearty welcome awaits your arrival."

JOINTLESS TO BUILD PLANT IN TRENTON

An announcement has just recently been made that the Jointless Fire Brick Co., of Chicago, Ill., has purchased a two-acre tract of land from the Eurcka Flint Co. at Trenton, N. J. Efforts of the Chamber of Commerce at Trenton have persuaded the Jointless Co. to build a \$75,000 plant at Trenton. It is planned to produce about two carloads daily. The plant will be a modern one and machinery will take the place of labor wherever possible.

SECURES FREIGHT RATE REVISE

The freight rate on clay, in carloads, from Carbon to Brazil, Ind., during Federal control, protested by the Clay Products Co., of Brazil, has been found unreasonable by Exam-



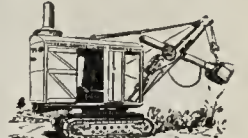
"WITH ONE MAN and one ERIE Shovel, we easily get our 300 cubic yards per day. This is sufficient to take care of the daily output at each of our 3 plants, but we could easily increase this output if necessary. In our opinion, the ERIE is the shovel." —Edw. T. Conley, Sec'y, Bradford Brick and Tile Co., Bradford, Pa. (Owners of 3 ERIES.)

For larger output than the above—500 to 600 cubic yards per day, or more—it is advisable to use two men on the shovel. But when your plant requirements are not too great an ERIE and one man will serve.

We will be glad to send you data showing just what you can do with the ERIE. Write us.

ERIE STEAM SHOVEL CO.

Formerly Ball Engine Co., Erie, Pa., U. S. A.
Builders of ERIE Steam Shovels and Locomotive Cranes



ERIE Shovels can be had with broad tired traction wheels, standard gauge car wheels, or on ERIE lubricated caterpillar type mounting. All interchangeable on the same truck frame.

ERIE

Revolving Shovels



FOERST FUEL OIL BURNERS

will burn any grade of fuel oil, producing greater and quicker heat with safety and perfect flame control. Non-clogging. Assures increased output of ware—reduction of burning time—and cut in costs.

Write for Catalog and Information

JOHN FOERST & SONS
Bayonne - - New Jersey

REPRESENTATIVES
Baumes-McDevitt Machinery Co., St. Louis, Mo.
Fuel Oil Engineering Co., Cincinnati, Ohio

Estimates furnished on
Complete Installations





Fewer Men More Machines

will be the cry in 1923, for the day of unskilled labor is past. If the work is to be done at a price commensurate with buying power, you must have more machines and fewer men.

The POIDOMETER is equipment for your Plant Betterment. It will eliminate your pug mill man, and mix and temper your clay more accurately with unequaled speed.



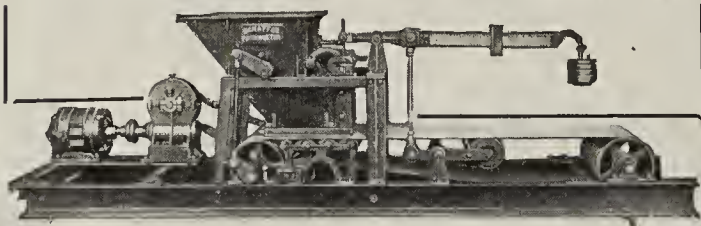
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*Our engineers will
explain it in detail*

SCHAFER ENGINEERING and EQUIPMENT COMPANY

2828 Smallman Street

Pittsburgh, Pa.



MAXIMUM HEAT FROM YOUR COAL—

Even Temperatures—and Reduced Costs,
with Marion Portable Kiln Grates.

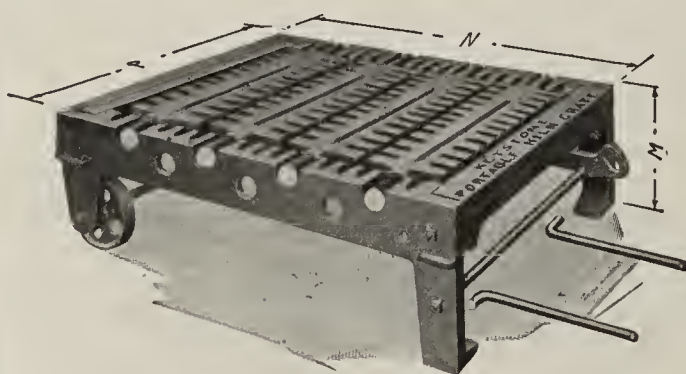
Marion Portable Grates are recommended not only because they do all this, but because they continue to pay their owners dividends long after they have repaid the first cost.

*Ask for descriptive
details.*

MARION MACHINE FOUNDRY & SUPPLY CO.

P. O. Box 395

Marion, Ind.



iner J. H. Howell, in a proposed report to the Interstate Commerce Commission. The freight was handled by the Pan Handle.

STANDARD TO RUN ALL YEAR

Optimistic as to the spring demand for building materials, the Standard Brick Manufacturing Co., Evansville, Ind., is planning to run one of its plants all winter and another as long as the weather will permit, John Andres, secretary and treasurer of the company, says. Sheds, in which to store the accumulated output, are being constructed at the east and west side plants. The west side plant, which is equipped for winter work, will be run all season, except two weeks during the holidays when repairs will be made. The east side plant will run as long as the weather permits.

CLAY PRODUCTS DEMAND HAS BEEN GREAT

Never in the history of the industry has there been so great a demand for clay products as there is at the present time, is the opinion of W. A. Shoemaker, manager of the Interstate Clay Products Co., of Indianapolis, Ind. "All building records have been broken during the present year," he said, "but in spite of the general demand for materials all along the line, I feel certain I am safe in saying that the demands for clay products are keeping ahead of the general level."

Because of the rush of business this year the company, in order to serve more promptly its patrons in Northern Indiana, opened a branch office at South Bend, Ind.

MANY IMPROVEMENTS AT WHAT CHEER PLANT

During the past summer the What Cheer (Ia.) Clay Products Co. has increased its capacity one-third, adding four new steel encased, 32-foot kilns. Two stories have been added to the dryer, making six stories in all and giving the company a dryer capacity of 125,000 square feet.

Mr. E. G. Nelson, secretary and manager, recounts the history of the company's improvements during the year as follows:

"In adding additional capacity to kilns and dryers, we did not add any machinery, instead we run our press in two shifts. This enables us to use all the exhaust steam.

"We are also building a testing laboratory, which includes a hydraulic testing machine, hydrostatic testing machine, scales, dryers and boilers for the absorption test. Our expert die man will have charge of the testing laboratory and the making and rehousing of dies.

"Our machine shop is complete and up-to-date, consisting of one 72-inch boring mill, on which all of our larger dies are made; one turning lathe, key-seating machine, power saw, drill press, power trip hammer, oxy-acetylene welding outfit, flex-shaft for grinding, and power pipe threading machine that will thread pipe up to and including six inch.

"We also have a complete wood-working shop, where we make and repair cradles, drums, trucks, wagons, and so forth.

"We have a storage room, which is in charge of a storekeeper and we keep a supply of extra parts for all machines, including belting, and so forth, always on hand. At the present time the stock value is approximately \$20,000. We feel the store room is one of the best paying departments we have. Everything, including shovels, picks, and so forth, are charged out and credited on their return.

We are now contemplating installing a coal unloading device and also an electric half yard clam-shell bucket for the loading of our clay from clay storage pile.

"For fire protection, we have installed a fire engine with five hundred feet of 2½-inch hose; fire practice drills are held at intervals. Some of our practice drills have shown that two streams of water can be thrown four minutes after the signal of fire has been given. This is done by means of connecting the fire engine boiler with our steam line so that live

steam can be turned into the boiler at a moment's notice, after which a fire is made in the engine and by the time the boys are ready for the run, we have a full head of steam. There are also hydrants at different points in the plant, 19 in all.

"With the additional capacity, we expect to be able to turn out from 30,000 to 36,000 tons of ware per year.

PLANT FOR OWENSBORO, KY.

Bolger & Medley, of Owensboro, Ky., are planning to establish a plant to manufacture face and rough cut brick and hollow tile, it is reported.

MAY LIMIT LOADS ON ROADS

All brick, building supply, lumbermen and general handlers of heavy commodities, which use trucks in hauling to a considerable extent, are among those who are fighting the Senator Bright light-load law, enacted during the last session of the Kentucky state legislature, for the purpose of preventing heavy loading of trucks during the period from December 15, to April 15, on the ground that during that period roads are cut up and foundations ruined due to frost being in the ground. Loads are limited to such an extent that truck lines would be badly hampered, and railroads would be the only ones to gain. Local companies would have trouble in hauling to the suburbs, where county roads had to be used. Injunction proceedings are now pending.

STATUS OF LOUISVILLE PLANTS

The close of the year finds the brick and clay working industries at Louisville, Ky., and thruout the state very active, and with prospects of steady business for the coming year. So far there has been but little freezing weather and the majority of the brick plants have been able to go right ahead. The price situation remains practically unchanged, there being a tendency toward slightly higher prices, but reduced costs of coal are having a tendency to hold the old prices in line.

Such houses as the P. Bannon Pipe Co., Coral Ridge Clay Products Co., Southern Brick & Tile Co., and Progressive Pressed Brick Co., all report very fair business. The Louisville Fire Brick Works is only fairly busy, but anticipates a much better demand after the first of the year. The Louisville Pottery Co., reports fair activity, while the jobbers, including such houses as the R. C. Tway Co., R. B. Tyler Co., and others, who are handling the jobbing end on face brick from Indiana and Northern states, report that they expect considerable trouble in securing supplies sufficient to take care of demand if business in 1923 reached the proportions which are anticipated.

NEW COMPANY FOR MASSACHUSETTS

The Consolidated Brick Co., of Melrose, Mass., has been incorporated to manufacture and deal in brick, and so forth. The capital stock is \$98,000. The officers are George L. Baldwin, president; James E. Fraser, 24 Natalie Ave., Melrose, treasurer; Kathryn Danforth, secretary.

FIND NEW DEPOSIT IN MINNESOTA

It is not improbable that in the not distant future Grand Rapids, Minn., will have a brick plant. Clay deposits have been discovered just a mile east of the town and it is said that the clays are suitable for manufacture into brick. Business men of Grand Rapids have considered the proposition but so far nothing has been done toward establishing a plant.

FORM COMPANY FOR \$15,000

The Coates Brick & Tile Co., of Kansas City, Mo., has filed articles of incorporation with Secretary of State Charles

For a Happy and Prosperous New Year

equip your Kilns with
"The One Successful Kiln Burner"

Saves you
Money
On every
Kiln.
Ends your
Losses, insures
Economy,
Service and
Satisfaction.

We Can Furnish
COMPLETE INSTALLATIONS
For Steam, Compressed Air or Low Pressure Systems

The Smokeless Oil Burner Co.
BUCYRUS, OHIO

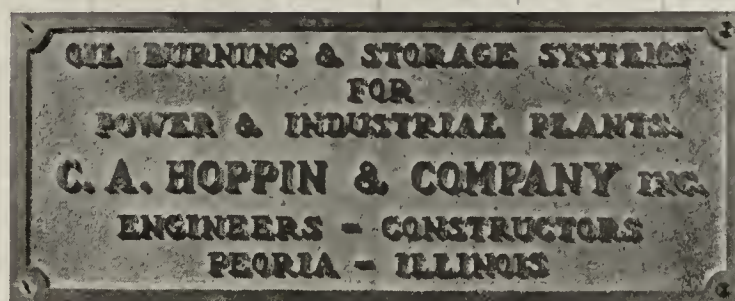
Tanks Pumps Meters Strainers

Eventually— You Will Burn Oil

Clay plant operators everywhere are rapidly installing oil burning systems to burn ware, and once oil is used they will never go back to coal for the reason that, besides effecting enormous savings in labor, time and fuel, they get, thru an even and thoro distribution of heat, 100% burns of quality ware.

The Burning Department is the most important one in your plant. What better Plant Betterment move could you make than to equip your kilns for oil-burning *now*.

Let us tell you about our Engineering Service
No obligation



PLANT BETTERMENT SERVICE

A sincere interest in your problem, together with common sense methods and a broad experience makes this service highly profitable.

Write for details

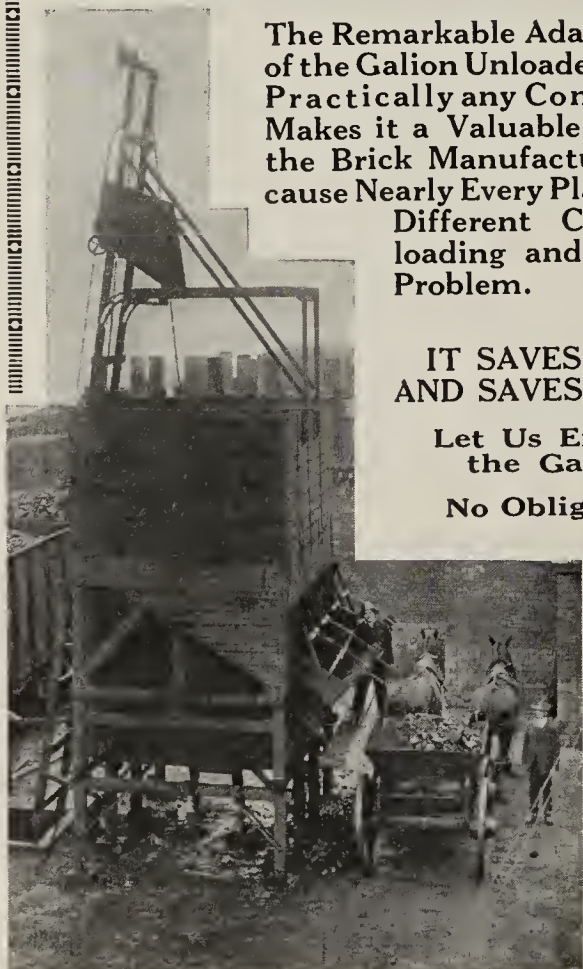


Adaptability

The Remarkable Adaptability of the Galion Unloader to meet Practically any Conditions Makes it a Valuable Asset to the Brick Manufacturer, Because Nearly Every Plant Has a Different Coal Unloading and Storing Problem.

**IT SAVES TIME
AND SAVES MONEY**

**Let Us Explain
the Galion
No Obligation**



**The
GALION**
Iron Works
& Mfg. Co.
Galion,
Ohio

U. Becker at Jefferson City, with a capital stock of \$15,000, a report states. The company will manufacture and sell brick and tile. The incorporators are S. J. Moorhead, W. W. Coates and A. C. Kickels.

TO MINE—MANUFACTURE CLAY AT SEDALIA

The Penroad Coal Mining Co., which has been incorporated at Sedalia, Mo., with a capital stock of \$30,000, will also mine and sell clay and manufacture clay products. The shareholders of the concern are V. O. Bay, I. F. Holly, E. H. Milton, J. G. Love, H. E. Fricke, F. E. Hoffman, Sr., E. H. Shyre, J. E. Cannaday, W. L. Sprecher, C. S. Marshall and E. Schwald.

MAY OPEN CREIGHTON PLANT

After being idle for some two or three years the Creighton (Mo.) Brick & Tile Plant may again be reopened, according to Walter B. Benn, owner. Arrangements have been practically completed and the opening of the plant is almost assured. Dry press brick, hollow building tile and drain tile will be manufactured. Probably 25 to 30 men will be employed.

JOVA RAISES CAPITAL TO \$500,000

The Jova Brick Works, Inc., Roseton, N. Y., has filed notice of increase in capital from \$56,000 to \$500,000 for proposed expansion.

CORNING PLANT IS BUSY

Employing approximately 40 per cent. more men than at this time a year ago the Corning (N. Y.) Brick, Terra Cotta & Tile Works is manufacturing about 2,500 tons of terra cotta and 18,000 tons of brick a year. M. E. Gregory, of the Corning company states that he would employ more men if the right kind were available.

CROUSE BUILDING ADDITION

Announcement is made that the Crouse Clay Products Co., Akron, O., will erect immediately a factory building on East South Street. The building is to be of fireproof construction and two stories high.

FIRE DELAYS IRONTON COMPANY

Reports state that the Ohio Refractories Co., Ironton, Ohio, which recently was considerably damaged by fire, has erected a temporary wooden structure to continue manufacturing on contracts. It is hoped to start work soon on the erection of permanent buildings.

NEW REFRACTORIES COMPANY FOR CANTON

The Canton (Ohio) Refractories Co. has been incorporated with an authorized capital of \$15,000 to manufacture brick, building tile and general clay products, it is said. Incorporators are Frank E. Bamberger, Frank H. Haldman, John F. Kugler, Anna M. Kugler and F. P. Bamberger.

STARTS BUS SERVICE FOR EMPLOYEES

Burton-Townsend Brick Co., of Ashtabula, Ohio, has established a bus service from the plant to the city car line for the benefit of employees. The bus line joins the car line at the N. Y. C. depot. The company anticipates starting another bus line from the brick plant to the car line at the corner of West and Prospect streets.

GETS OPTION ON MISSOURI CLAY

C. H. Iddings of Cleveland, associated with a large Pennsylvania brick company, has obtained an option on approximately 1,000 acres of clay-mine land close to Montgomery City, Mo., a report states. If the test of the clay meets with

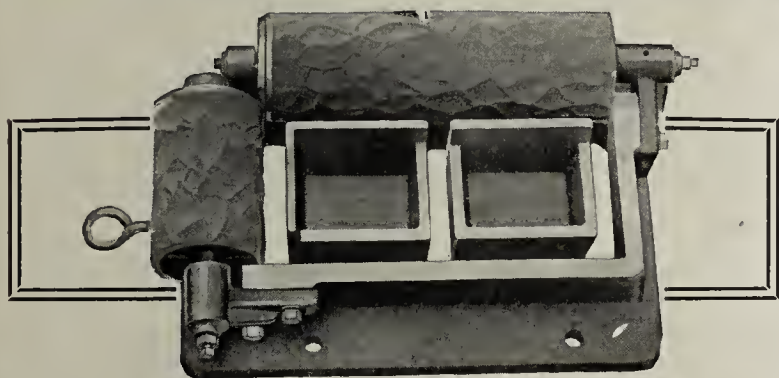
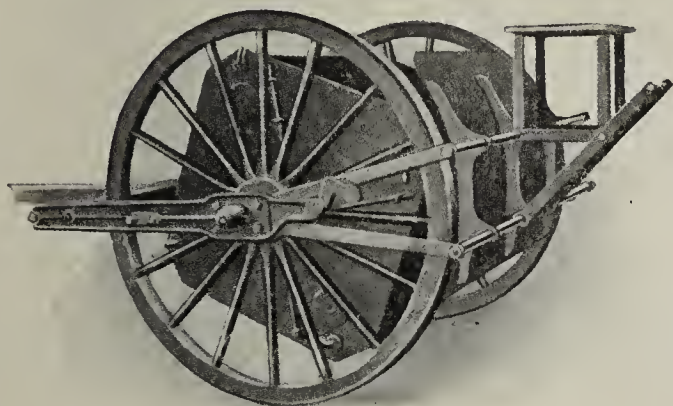
To Gather Surface Clay and Shale—

there is no cheaper or more efficient way than by using The Fernholtz Improved Clay and Shale Gatherer.

Actual tests and testimonials from brick, tile and pottery plants in nearly every state in the Union verify our claim that with the use of this improved gatherer about ONE-HALF OF THE COST OF CLAY AND SHALE GATHERING CAN BE SAVED.

Write for full information regarding this machine

Fernholtz Brick Machinery Company
ST. LOUIS, MO.



Tile for Exterior Walls

The Rock-faced wall tile die illustrated suggests a practical way of ornamental tile making in this pattern or other designs. We also manufacture dies for Brick, Fireproofing, Silo Block, Drain Tile, etc.

Ask for information concerning our equipment

Louisville Machine Manufacturing Co.
LOUISVILLE, OHIO



Records Speak Volumes

The unusual qualities of Caldwell Cypress Tanks are proven by their enviable records in all sections of the country. Perhaps this is largely due to the fact that, of all woods, cypress is the one which lasts best outside its native climate.

Thirty years experience in building tanks enables us to couple this remarkable tank wood with workmanship and design that ensure the maximum of tank satisfaction.

Send for Catalog

W. E. Caldwell Co.

Incorporated
2380 Brook St., Louisville, Ky.

Caldwell
TANKS
AND
TOWERS



Years of Discretion

Early in their career, Jenkins Valves proved themselves to be thoroughly good valves. Since then they have proved themselves thoroughly dependable valves, by never once deviating from that standard of perfection.

Today, after fifty-eight years' experience, years of friendships made and kept, they are recognized as the valves of the dependable service.

Identified by the Jenkins Diamond Mark and Signature—at supply houses everywhere.

JENKINS BROS.

New York Boston Philadelphia Chicago
Montreal London

FACTORIES: Bridgeport, Conn.,
Elizabeth, N. J., Montreal, Can.



Jenkins Valves
SINCE 1864

If Marked **BREWER** It Is Good

Clay Working Machinery

Block, Brick and Tile Machines	Feeders
Pug Mills	Disintegrators
Crushers	Dry Pans
Granulators	Cutters
	Hoists, etc.

Free Engineering and Clay Tests

Brewer engineering service is available without charge or obligation. Competent men will give you best advice, look over your plant and make suggestions for any needed improvements. Take advantage of this free service. Send for Brewer catalog.

H. Brewer & Company Box 25 Tecumseh, Mich.



the necessary requirements, the Pennsylvania company anticipates erecting a fire-brick plant on this territory, it is said.

KENYON INCREASING CAPACITY

The Kenyon Brick & Tile Co., of Oklahoma City, Okla., will construct additional units to increase the output of the factory to 40,000 brick a day. Later the company will install machinery for the manufacture of face brick, face tile and pottery, increasing the capacity to 100,000 brick per day.

CHANGE IN PHILADELPHIA RATES

It is reported that an important freight rate change affecting Philadelphia shippers and consignees was submitted for hearing before the Trunk Line Association. This makes the cost of brick, clay and clay products, in car lots, from Delmar, Del., to Philadelphia, \$2.25 per net ton.

FORM CLAY MINING COMPANY

The Blanchard Moshannon Mining Co., Pittsburgh, Pa., has been organized under state laws to operate fire clay properties, it is said. Extensive operations are planned on a tract of land in Western Pennsylvania secured by the company. It is headed by Frank H. Robinson, well known in the local clayworking equipment industry; A. C. Van Kirk and William G. Blanchard. The company is represented by A. W. Forsyth, 1010 Berger Building, Pittsburgh.

PITTSBURGH TO PUT ON BUILDING SHOW

Arrangements have been made by the Pittsburgh Builders' Exchange to hold a building show at Motor Square Garden, Pittsburgh, Pa., in the month of March, 1923. This show will be conducted entirely by the management of the Builders' Exchange and efforts will be made to make it the greatest of its kind ever held at Pittsburgh. E. M. Tate, secretary of the Pittsburgh Builders' Exchange, is managing director of the show. The Executive Committee consists of John Eichleay, John Eichleay, Jr., Co., chairman; Frank C. Hoffman, Hoffman Lumber Co., treasurer; A. Q. Starr, of Huston Bros. Co., building supply dealers; and W. S. Wing, eastern sales manager of the Universal Portland Cement Co.

FIGHT RATES ON REFRACTORIES

The Harbison-Walker Refractories Co., of Pittsburgh, Pa., and the United States Refractories Co., of Mt. Union, are complainants with the Bethlehem and other steel companies against the Pennsylvania railroad on the question of what should constitute proper rates on fire brick for iron and steel plants from the Hawstone, Mt. Union and Van Dyke plants. A hearing was held before the public service commission but no decision has as yet been handed down.

The case is of importance in the Pittsburgh and other manufacturing centers because of the principles of rate making involved. The haul to Harrisburg and Steelton was made the test case and it was contended that \$1.63 a ton would be ample instead of \$2.60.

SENDS "AIREDALES" TO CANADA

The Sumter (S. C.) Brick Works announces the shipment recently of a carload of brick to Montreal, Can., which is believed to be the first brick ever shipped by a southern plant to any country north of the United States, altho the clay products industries of the district enjoy a large business in export and Latin-American countries to the south. The Sumter company makes the well-known "Airedale" brick.

SELLING JACKSON FIRE BRICK CO.

J. Goldman, of 140 North Dearborn St., Chicago, receiver for the plant and properties of the Jackson Fire Brick Co., of Jackson, Tenn., is offering the entire plant for sale to the highest bidder, the sale to be probably consummated some time during January.



Organized 1885 Incorporated 1908

FIRE INSURANCE

In addition to effecting substantial reductions in Fire Insurance Rates, Squire Company's service includes Fire Prevention Engineering work—Adjustment of Losses—In fact, complete elimination of all worry in connection with insurance details.

Quotations upon request.

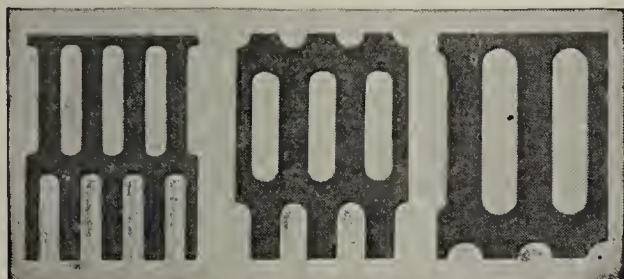
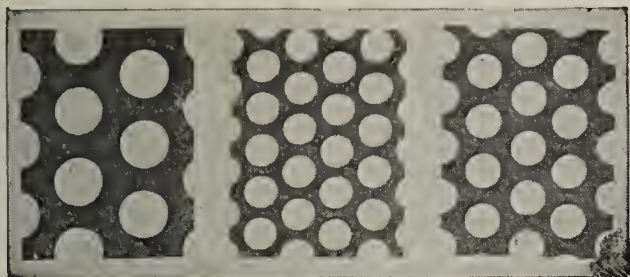
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INSURANCE . . . BROKERS
SQUIRE BLDG. 81 JOHN ST.
NEW YORK

CHICAGO PHILADELPHIA NEWARK, N. J.
LONDON, ENG

Insurance Specialists to Clay Manufacturers

Perforated Steel Screens



For Screening Clay, Shale, Sand, Gravel, Stone and Cement

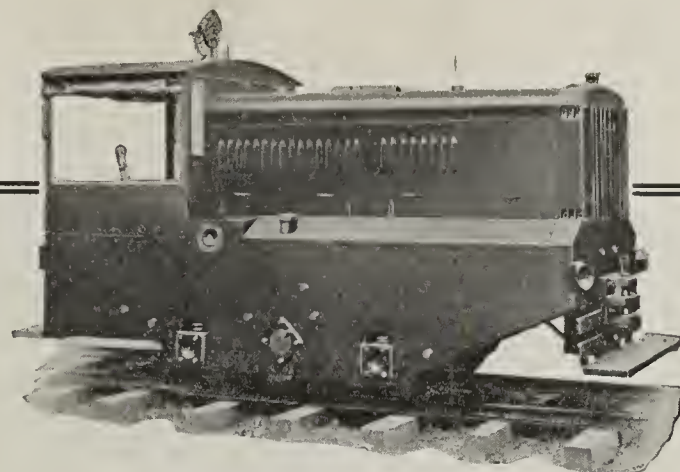
All sizes and shakes of holes in metal of proper thicknesses to give the best screening results.

Sheets furnished flat or rolled to shape for revolving screens.

THE HARRINGTON & KING PERFORATING CO.

635 N. Union Ave., Chicago, Ill.

NEW YORK OFFICE: 114 Liberty St.



MINSTER LOCOMOTIVES

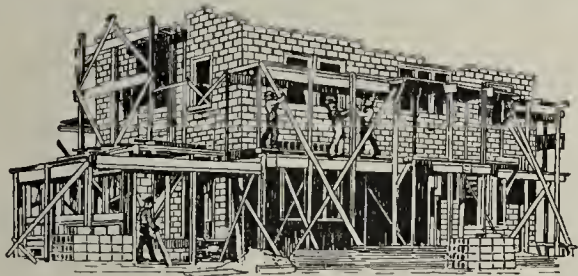
are particularly adaptable to clay pit work. Not only does a Minster offer you cheaper haulage, but affects a big saving in time and labor.

*Ask about the Minster
2 to 8 ton capacities*

THE INDUSTRIAL EQUIPMENT CO.

510-516 OHIO STREET MINSTER, OHIO

Eastern and Export Department
The Herbert Crapster Co., Inc.,
1 Madison Ave., New York City



How To Increase Brick Profits!

More bricks are wanted than ever before. Yet many yards are losing big added profits through haphazard production methods. Increased output and the consequently larger fuel consumption puts a premium on every ton of coal. Temperature control provides the only method of making each firing yield the utmost in uniformly good bricks. Write now for evidence that the installation of

Thwing
PYROMETERS

increase brick profits by providing positive temperature control.

THWING INSTRUMENT COMPANY

3347 Lancaster Avenue
Philadelphia, U. S. A.



115

DIESEL ENGINES FOR CLAY PLANTS

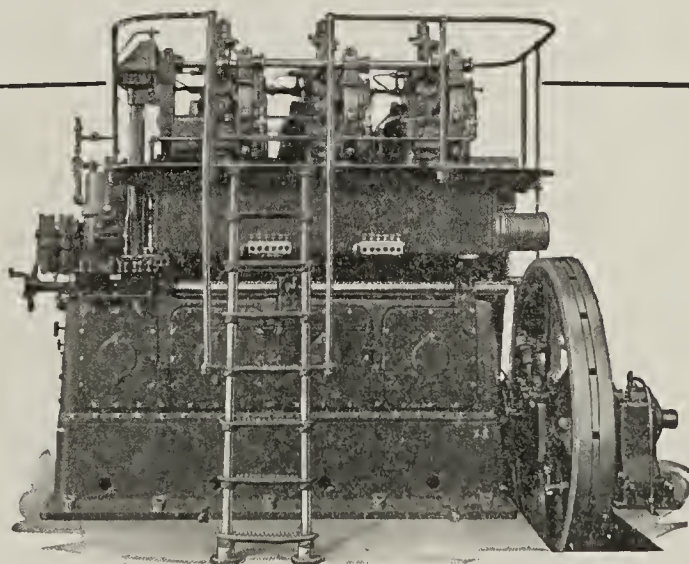
Economical Power—Efficient Operation—Convenient—Conservative—Complete—Easy to care for—Always ready and reliable.

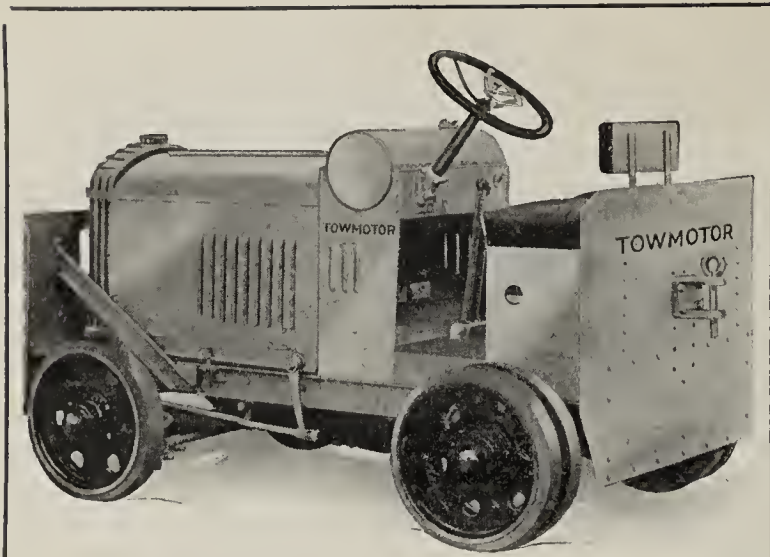
This engine operates on cheap fuel oil. Fuel storage space decreased. A small amount of fuel makes a big amount of power.

*Send for new catalog, either vertical
or horizontal types furnished.*

THE HADFIELD-PENFIELD STEEL COMPANY
Bucyrus Ohio

Formerly the American Clay Machy. Co.





Not the lowest purchase price, but the lowest ultimate cost constitutes real cost and true economy.

That the TOWMOTOR gives the most for the lowest ultimate cost has been thoroughly demonstrated and proven by TOWMOTOR users, whose names we will be glad to supply along with descriptive bulletins and prices, upon request.

Write us today.

The Towmotor Company
1226 East 152nd Street
CLEVELAND

FALLING KILN WALL INJURES THREE

Three men were hurt and a mule killed when the wall of a brick kiln at the L. T. Lewis Brick Co., Nashville, Tenn., collapsed. Officials of the company could find no reason for



A Good View of a Brick Kiln at L. T. Lewis Brick Co., Showing How the Brick Are Set.

the collapse of the wall, asserting that it was apparently in good condition before the accident occurred. The company manufactures common brick, burning them in the scove kilns. The illustration shows one of the kilns being set.

✕ ✕ ✕

The Burlington Brick Co., Hamilton, Ont., contemplates the erection of additional kilns.

WELLAND, ONT., TO GET NEW PLANT

Crowland Brick & Tile Co., Ltd., Welland, Ont., has been incorporated with a capital of \$40,000 to manufacture brick, tile, terra cotta, and so forth. Incorporators include H. L. Hatter, J. F. Thorpe, G. H. Totty and A. Many, of Welland, and R. Thompson, of Port Robinson.

✕ ✕ ✕

SHOULD THE DEALER SELL CLAY PRODUCTS

(Continued from Page 959)

believe to an extent much greater than the percentage of dealer profit. Should production be reduced to cover the territory of but a few counties, the production cost would greatly increase. Regarding the manufacturer who attempts to serve the consumer and dealer with equal favor; he may be all right as long as his plan works. Regarding the dealer who is indifferent, we think he has lost sight of the fact that the manufacturer has a large capital investment and will sell his output one way or another, and that the demand for clay products is sure to grow thru the efforts of the manufacturer to convince the consumer that permanent construction pays big dividends. After all, these questions must be considered by the individual firm and not by any organization of manufacturers or distributors. It is clearly the right of the producer to exact a satisfactory profit and to follow out his individual ideas regarding the economy of distribution, and with the dealer it is clearly his right to buy of whom he chooses. It appears to be the right, legally speaking, of the purchaser to organize with the purpose of buying advantageously, while those who sell cannot organize and determine an average cost to which a reasonable per cent. of profit is added to determine a safe selling price. It all resolves itself into a question of SERVICE. How can the two branches, production and distribution, best render a service that will

Cut Your Burning Time

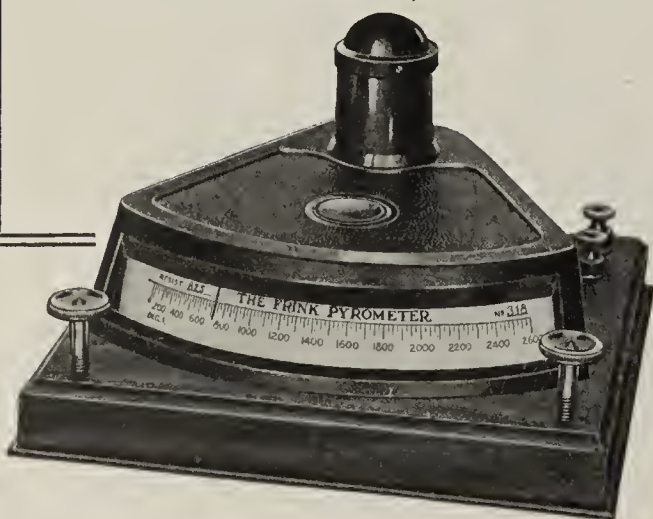
*by equipping your kilns
with*

FRINK PYROMETERS

which afford perfect control of all temperatures—saving time and money in the burning and enabling your burners to hold even temperatures, thus improving the quality.

WRITE FOR DETAILS

THE FRINK PYROMETER COMPANY
LANCASTER, OHIO



"HELPING THE GHOST TO WALK"—



That's an old expression applied to a new form of equipment, and it means helping to meet the payroll.

The GATES AUTOMATIC STOKER does this because it burns a better quality of ware at a lower cost.

Let us show you installations where this is actually being done.

It is easy to install—simple to operate.

The Clay Service Corporation

138 N. LaSalle Street

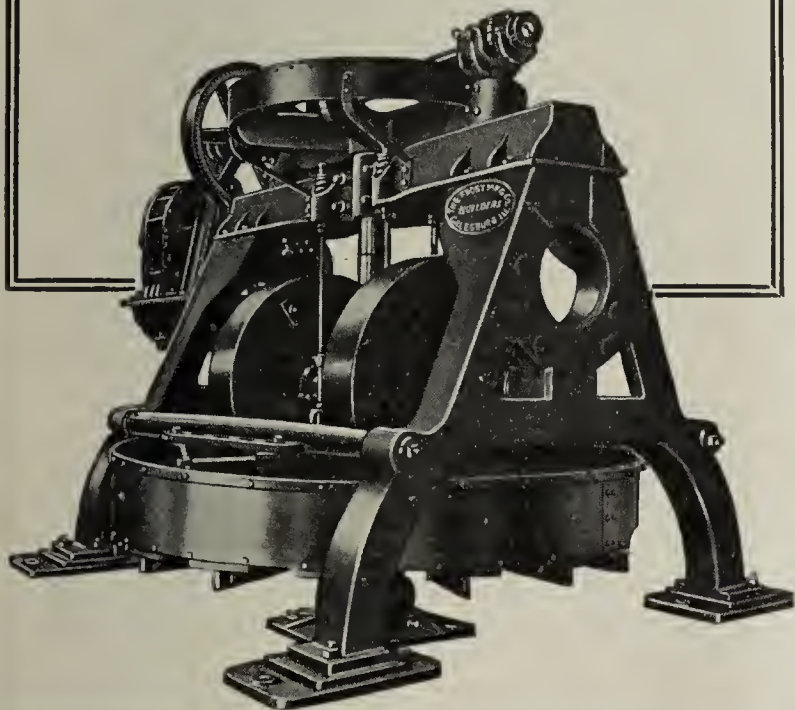
CHICAGO

BETTER QUALITY WARE

That is the result when Frost Dry Pans are put on the job.

THE FROST MFG. CO.

GALESBURG, ILLINOIS



QUALITY ECONOMY SERVICE

ATLANTA, GA

BALTIMORE, MD.

BOSTON

DETROIT

PITTSBURGH, PA



SAN FRANCISCO

PHILADELPHIA

MORSE Silent Chain Drives are 98.6% efficient for small or large drives. No worry about belt trouble, slippage of power and loss of production where Morse Chain Drives are installed.

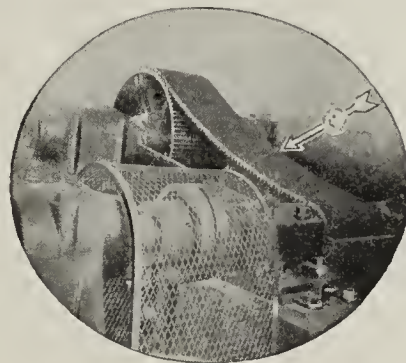
Write us if you have a transmission problem. We give engineering service without any obligation.

Drop a Card to the Nearest Morse Engineer

MORSE CHAIN CO.

Largest Manufacturers of Silent Chains in the World

ITHACA, NEW YORK



MONTREAL

MINNEAPOLIS

NEW YORK CITY

ST LOUIS, MO

TORONTO

WINNIPEG, MAN

CHARLOTTE, N C. CHICAGO CLEVELAND KANSAS CITY, MO



TYPE 31 - Six Foot HUM-MER

HUM-MER Electric SCREEN

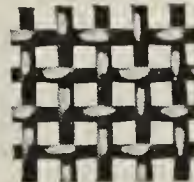
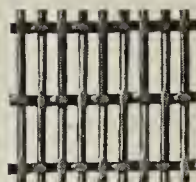
Makes screening and crushing more profitable. Screens any material, wet or dry, from 2½" opening to minus 200 mesh

Send for Catalogue No. 45-B

THE W. S. TYLER COMPANY

CLEVELAND, OHIO

Manufacturers of Woven Wire Screens and Screening Equipment



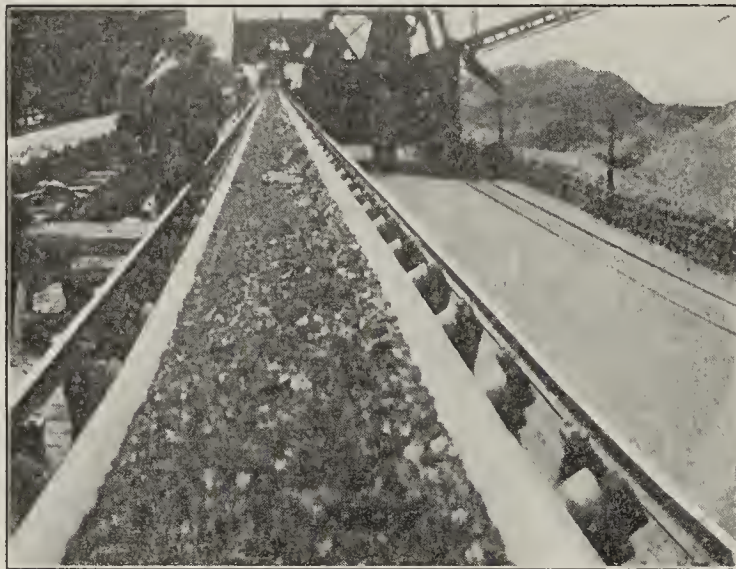
Have You a Difficult Belt Problem?

During the past thirty-seven years we have assisted many concerns with their conveying problems. A saving in conveying costs was the invariable result when our recommendations were followed.

Our belt experts may be of assistance to you.
May we figure on your next conveyor?

Quaker City Rubber Co.

Mfrs. Mechanical Rubber Goods—Auto Tires and Tubes
PHILA. CHICAGO PITTSBURGH NEW YORK



HENDRICK SCREENS FOR ALL PURPOSES



ELEVATOR BUCKETS
CONVEYOR TROUGH and FLIGHTS
STACKS, TANKS,
GENERAL SHEET and
LIGHT STRUCTURAL WORK
LIGHT AND HEAVY STEEL
PLATE CONSTRUCTION

Ask for your copy of the
Perforated Metal Handbook

HENDRICK MFG. COMPANY CARBONDALE, PA.

NEW YORK OFFICE: 30 Church St.
PITTSBURGH OFFICE: 544 Union Arcade Bldg.
HAZLETON, PA., OFFICE: 705 Markle Bank Bldg.

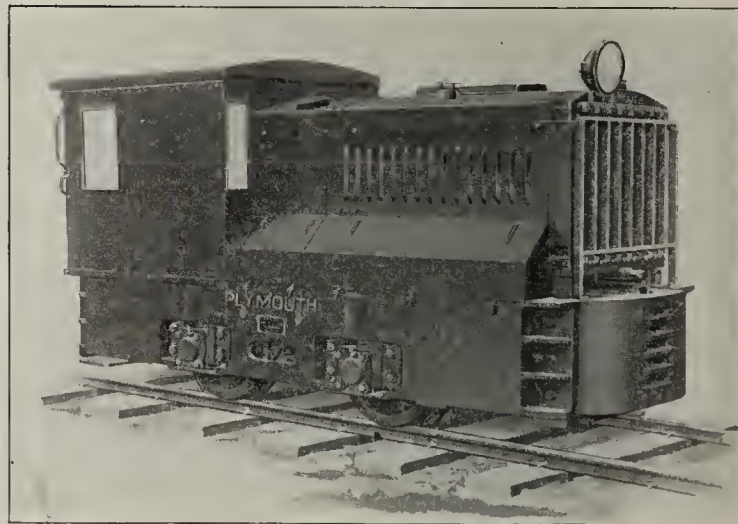
make their policy attractive to the buyer? And these must stop to consider that real service is worthy and that in rendering it one is sure to secure proper compensation. After a while the dealer will cease buying from the manufacturer who fails to render service, and the purchaser or consumer will soon discover that the dealer renders him a service which is worth the profit exacted. It's all a matter of sane judgment. In the building materials trade there are four parties concerned: The Producer, the Transporter, The Dealer, and The Consumer. Imagine it this way: The Producer occupies a highway parallel to the transporter's railway. The dealer has his yards on one side of the track, the purchaser his home on the other side. The dealer has safe overhead crossings which are private. The producer must use the grade crossing in reaching the consumer. Accidents and smashes will occur, but the principal damage will be to the producer. If the dealer does not use his overhead crossings to deliver clay products to the consumer, the manufacturer will construct subways to reach him safely. We are sure that the dealer appreciates that the clay products manufacturer, as a rule, is attempting to co-operate with him in establishing a distribution of clay products thru dealers because he feels that it is the best method and a method which will be clearly in the interests of the three parties concerned."

Machinery and Equipment

Devices and Methods, New and Old Concerning Which Information of Interest to the Clay Manufacturer Is Published

GASOLINE LOCOMOTIVE HAS GREAT POWER

In the seven-ton, four-speed, Gear Drive Gasoline Locomotive announced by the Fate-Root-Heath Co., Plymouth, Ohio, the manufacturers claim that in actual test it de-



Plymouth Seven-Ton Four Speed, Gear Drive Gasoline Locomotive.

veloped and maintained a drawbar pull of 5,250 pounds on sanded rail. The four speeds are $2\frac{1}{2}$, 4, 8 and 12 miles per hour, either forward or reverse.

This remarkable showing is claimed to be due to the unique design and construction of the transmission. The gears are unusually large and massive, an exclusive feature being an additional final driving gear, $14\frac{1}{2}$ inches diameter by 4 inches face. This gear permits of the proper speed reduction, and also places the sprocket shaft which it drives on the same horizontal plane with the axles, so that no jackshaft is required. The other gears are 2 in. and $2\frac{1}{4}$ in. face, of large diameter.

20 YEARS OLD



TWENTY years ago a large terra cotta company installed their first Goodman Electric Locomotive. This locomotive is still in continuous daily service.

The owners state that they have not a machine in their plant that has given them such returns for the investment as have their Goodman Electric Locomotives.

Will your next locomotive be a Goodman Electric?

Write today for catalog. We will send with it a data sheet which you may fill out and return to us for our use in determining just what we can supply to meet your exact requirements.

Ask for Catalog 220

Goodman Manufacturing Co.

48th and Halsted Streets
Chicago, Ill.

(19)

Rich Clay Deposits

ALONG THE

**Lake Erie, Franklin
and Clarion Railway**

If you are contemplating the construction of a new plant, get full information regarding the rich clay deposits situated in the **HEART OF THE GREATEST INDUSTRIAL REGION OF THE WORLD**, divided approximately—6 ft. Plastic Clay, 5 ft. Semi-Flint Clay, and 5 ft. Flint Clay, eliminating the necessity of importing any materials.

These valuable clay deposits are suitable for making high-grade fire brick (safely within No. 1 Classification), building brick, and other clay products, Coal, Natural Gas, and Electric Power are available, and, in many places, coal is underlying the clay.

L. E. F. & C. R. R. connecting with N. Y. C. Lines east and west; Penna. Lines east and west; Erie R. R.; Buffalo, Rochester & Pittsburgh R. R.

*Write today for full information
No obligation*

**Lake Erie, Franklin &
Clarion Railroad**

FRANKLIN, - - PENNA.

GET THE FACTS *about* **GEORGIA KAOLINS and REFRACTORY CLAYS**

Which cover an area 225 miles long and from 20 to 50 miles in width. Many of the deposits can be worked with little or no industrial haulage. Overburden light and deposits are rich in kaolins and refractory and pottery clays.

The United States Bureau of Mines, in co-operation with the Central of Georgia Railway, has been doing research work in the refining and treatment of these clays since July 1, 1921.

Let us mail you map and description of resources and the results of tests

J. M. MALLORY
General Industrial Agent

**CENTRAL of GEORGIA
RAILWAY COMPANY**
SAVANNAH, GA.

The sliding gears are made in pairs on the second driving shaft, giving extra long hub length, and reducing wear to a minimum. The gears that are driven are the only ones that are in mesh. Forward and reverse speeds are obtained by large bevel gears with internal gear teeth into which the pinion that drives the main gear meshes, thus doing away with jaw clutches.

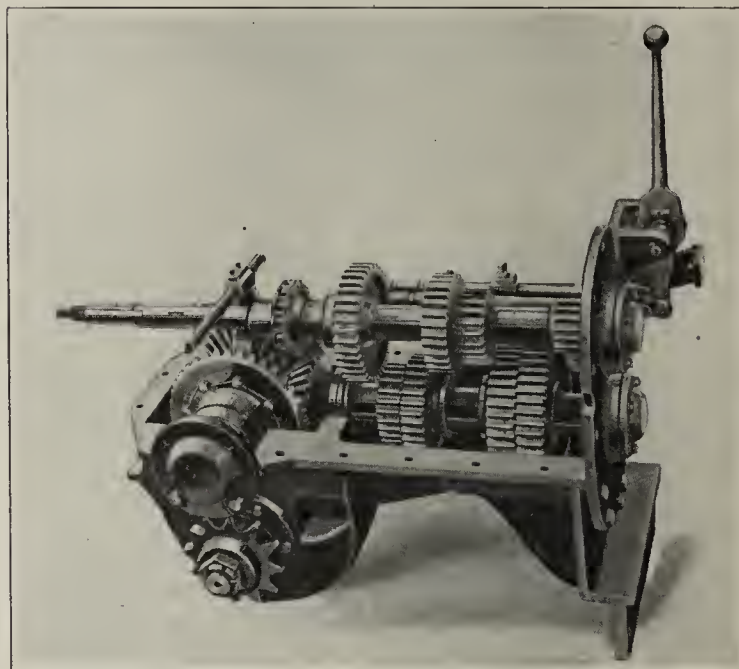
All gears are of alloy hardened steel, mounted on extra large shafting and ball bearings. Bearings are all inside gear case, from which they receive their lubrication, requiring no special attention, and insuring permanent alignment at all times.

The final drive is by means of two short heavy chains, one to each axle, driven direct from the transmission.

The power plant consists of a Buda heavy duty engine, four cylinder, 5 x 6½ inches, equipped with Bosch high tension magneto, Bosch starter and lighting; Pierce governor and Stromberg carburetor. Radiator is Modine sectional core type, cooled by 24-inch fan and protected by heavy steel guard.

The clutch is the dry plate type, nine driving discs, faced on each side with non-burnable facings. Does not require oiling, and is very smooth in action.

Axles are mounted on Hyatt heavy duty roller bearings with hardened steel sleeves to take the wear. The axle end thrust is taken by bronze thrust plates placed in the axle boxing caps, which provide perfect lubrication. Axle springs are 12¾ in. long, so that wheels readily follow an uneven track, make easy riding, and give excellent traction.

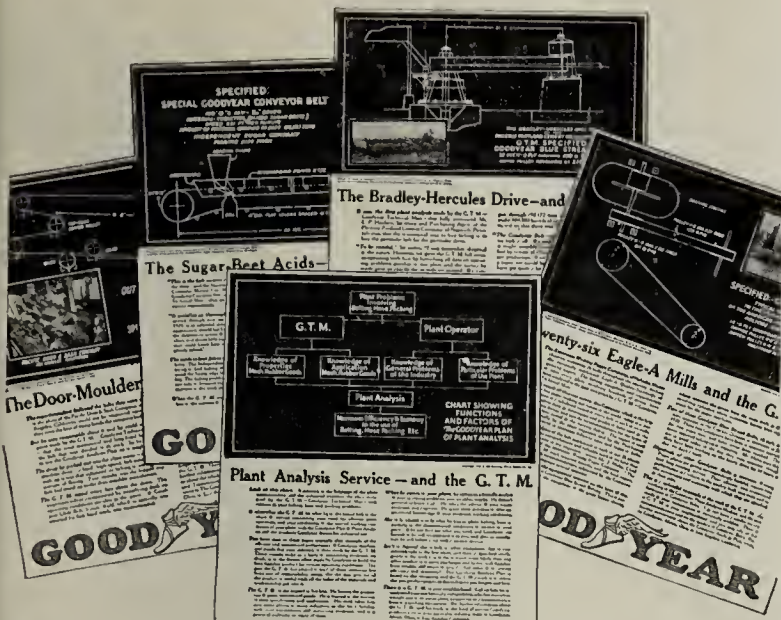


Built-up Transmission with Cover Removed.

The brakes are placed between the wheels and a brake shoe covers both the tread and flange of the wheel. The lever type of brake rigging is used, producing the same pressure on all four wheels, regardless of the wear on wheels or shoes.

Sand boxes are located high behind the engine which keeps the sand warm and dry. Sand pipes hug the rails, placing the sand directly on the rails. The valves do not slide on the seats, preventing considerable wear. The sand is agitated when the valve is opened, insuring a positive flow.

The frame is of massive construction and built close to the track. Bumpers are arched so as not to derail cars in rounding sharp curves. The cab and canopy are of all-steel construction, easily disassembled. The cab has a side as well as a rear entrance, affording greater safety, and provided with wired glass windows.



The World of Industry —and the G. T. M.

Suppose you send for the G.T.M.—Goodyear Technical Man. You may act on one of these advertisements, or on the recommendation of a friend, or at the urgent necessity of some belting problem that is costing you money.

His method is logical, you say to yourself. It stands to reason that belts specified precisely to their work will perform more economically and more efficiently, and last longer than belts bought just as so many feet of belting. Still the natural question arises whether the G. T. M. can be of assistance to you, in your particular industry.

You will be surprised to find what a range of industry the G. T. M.'s experience covers. It is safe to say there is not an industry using belts for transmission or conveying, into which the G. T. M. has not been called. This reproduction of a few of the recent G. T. M. advertisements suggests how diverse are the lines into which his analyses take him.

There you see the evidence of G. T. M. thoroughness in the performance of the Goodyear Belts he specified for quarries, planing mills, paper mills, sugar mills. Scores of other records, just as striking, either published earlier or still held unpublished in our files, testify to the G. T. M.'s accuracy in solving the belting problems of scores of other industries.

You will like the G. T. M. and his ways. He will come to you with an open mind on your belting problem. He may hold an engineering degree, as not a few of the G. T. M. corps do, or he may be a seasoned graduate of the school of experience. In either case, he knows belting—has had a thorough training in its uses and design—and has the advantage of having studied belting performance under almost every conceivable service condition.

This friendly analyst co-operates with your Plant Superintendent, Factory Manager, or Engineer. He is as careful to take into consideration your actual operating requirements and conditions, as he is to compute dimensions, power load, and the other factors that influence belt performance. He will work as faithfully and intelligently on the problem of a single drive as on the job of equipping an entire plant.

You can depend upon the recommendations made by the G. T. M. You can rely on any Goodyear Mechanical Goods he specifies—Belts, Hose, Valves and Packing—to do their work better, last longer, and cost you less in the end. To get in touch with the G. T. M. nearest your plant, or for further information about the Goodyear Plant Analysis Plan, write to Goodyear, Akron, Ohio, or Los Angeles, California.

Goodyear Means Good Wear

GOODYEAR

Copyright 1922, by The Goodyear Tire & Rubber Co., Inc.

“HURRICANE” DRYERS



TUNNEL DRYER FOR INSULATORS

Reduce Your Drying Costs

One concern cut their drying time from 10 days to 2 days. Another concern cut 50 to 75 per cent of their sagger costs. If you have a drying problem, our engineers may be able to solve it.

“Hurricane” Dryers are constructed and equipped to reduce steam, labor and power consumption, and turn out the best grade of finished ware. Where our standard machines will not meet requirements, we are prepared to submit plans of specially designed apparatus.

Catalogs on request..

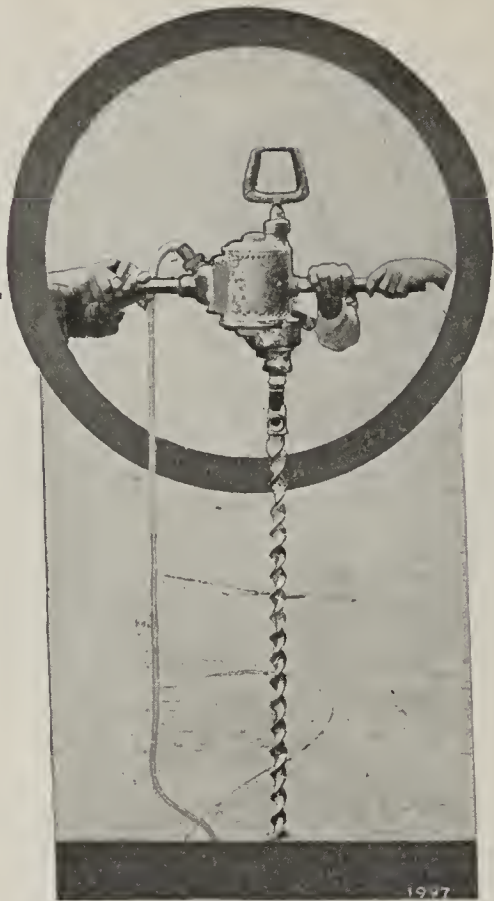
Automatic Mangles
Automatic Stove Rooms
Tunnel Dryers
Electrical Porcelain Dryers
Sagger Dryers



235

THE PHILADELPHIA
DRYING MACHINERY COMPANY
3351 Stokley St. Philadelphia, Pa.

Western Office: 1814 CONTINENTAL BANK BUILDING, CHICAGO



Put Little Giants on Your Pay-roll

"No brick plant is complete without a Little Giant Electric Coal Drill for drilling shot holes and repair work."

The Little Giant Electric Coal Drill illustrated drilled fourteen four-foot shot holes through plastic, semi-plastic and flint clay while a hand auger drilled one such hole.

Coal, clay and shale mines have repeatedly demonstrated the speed, economy and dependability of Little Giants. Speed up **your** shot-hole drilling and repair work with Little Giants.

Available for operation on D. C., or single, two or three-phase A. C. Address nearest Branch for trial drill.

Chicago Pneumatic Tool Company

Chicago Pneumatic Building, 6 East 44th St., New York

Sales and *Service Branches all over the World

* BIRMINGHAM	* DETROIT	* LOS ANGELES	* PHILADELPHIA	* SEATTLE
* BOSTON	* EL PASO	* MILWAUKEE	* PITTSBURGH	* ST. LOUIS
* CHICAGO	* ERIE	* MINNEAPOLIS	* RICHMOND	
* CINCINNATI	* FRANKLIN	* NEW ORLEANS	* SALT LAKE CITY	
* CLEVELAND	* HOUSTON	* NEW YORK	* SAN FRANCISCO	

R-28

BOYER PNEUMATIC HAMMERS • LITTLE GIANT PNEUMATIC AND ELECTRIC TOOLS
CHICAGO PNEUMATIC AIR COMPRESSORS • VACUUM PUMPS • PNEUMATIC HOISTS
GIANT OIL AND GAS ENGINES • ROCK DRILLS • COAL DRILLS

LITTLE
Coal



GIANT
Drills

Among Our Advertisers

Details Concerning New Models, Changes in Personnel, News Matters, etc., That Our Advertisers Believe Will Interest Our Readers

The Alliance Clay Products Co., Alliance, Ohio, wrote "Brick and Clay Record" recently about the methods employed at their shale bank. For about nine years they have had a Marion Model 36 Electric shovel in operation, and consider it one of the most satisfactory pieces of equipment which they own.

They feel that the New Marion Model 21 (three motor electric) which they have recently purchased is "a very worthy chip from the old block." They have found that the individual motor operation is a much better type of control than the friction clutch operation, and with the two "Marions" in their clay and shale pit, feel that their pit problems are solved.

The rest of the story follows in their own words:

"Our shale bank averages about 25 ft. in height and is of a tough, hard nature, and it would be impossible to dig with



Model 21 Digging Coal on Top of Clay After Shale Had Been Stripped Off and Worked Up Into Brick

any machine less sturdy or lighter in weight than a Marion No. 36. With this machine, however, we have been able to handle our shale winning problems satisfactorily. Immediately under our shale deposit we have a three ft. vein of coal, and under the coal we have eight to fifteen feet of fire clay. We use the three motor Marion Model 21 Electric shovel in the fire clay and coal digging.

"The Model 21 is equipped with caterpillar tractors that afford ideal means of locomotion, and makes it possible for the shovel to be moved quickly from the level for shoveling coal, and then to return to its operation removing clay.

"The electric power is ideal for a shovel, the operation of which is confined to limited territories or such territory in which electric power is at all times available. It relieves the necessity of employing a fireman as well as the trouble of keeping a supply of fuel and water available for the shovel operation at all times. One of the items of great satisfaction in electric power is the fact that there are no frozen water pipes in the winter time and the power is ready to go as soon as the operator steps into his position and presses the button."



Another View of Model 21 at Work

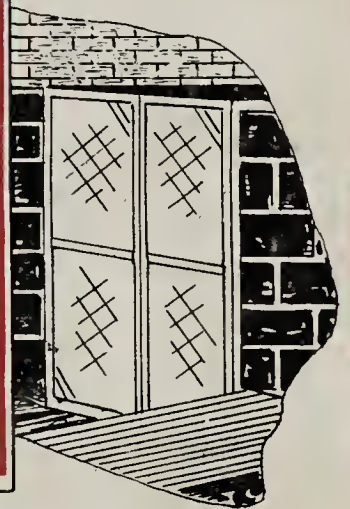
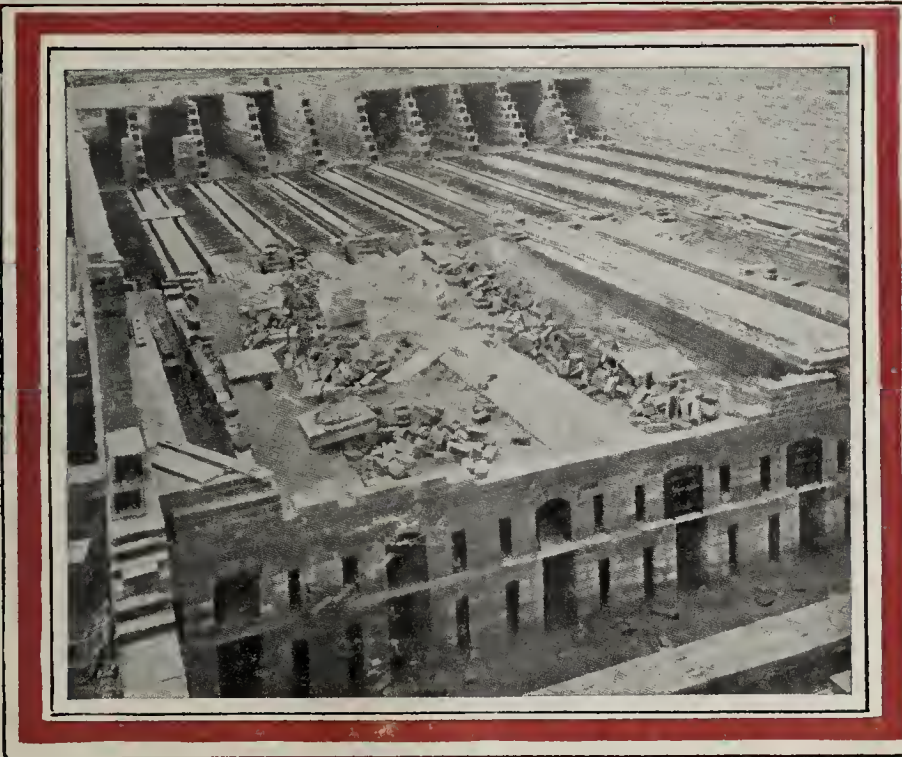
BRICK *and* CLAY RECORD

Vol. 61, No. 12

Chicago

December 12, 1922

Published Every Other Tuesday at 407 S. Dearborn Street, Chicago. Subscription Price \$3.00 per year. Entered as Second Class Matter January 2, 1911, at the Post Office at Chicago, Ill., under the Act of March 3, 1879.



PITTSBURGH HOT AIR DRYER

The Pittsburgh Direct Heat Dryer is designed to dry all clay ware generally in "Nature's own way"—with the added advantage of uniform heat and protection from adverse weather conditions.

The Pittsburgh Dryer

- is extremely economical.
- is easily controlled.
- is correctly designed, embodying control of temperature, humidity and circulation.
- is not injurious to ware or cars. Sulphur fumes from coal do not come in contact with either, since only clean, radiated heat is used.

**THE PITTSBURGH DRYER FITS ADMIRABLY INTO
THE PLANT BETTERMENT CAMPAIGN**

Write for detailed information
and list of users. No obligation

FRANK H. ROBINSON

Dryer Cars and Clay Working Equipment
Factory and General Office PITTSBURGH, PA.



237



The MINTER SYSTEM

MEANS
MORE
THAN
A
"SAVING
IN
BURNING
COSTS"

THE MINTER SYSTEM must be figured on a first cost capacity basis. Fewer kilns cost less.

IT MUST BE FIGURED on a durability basis—25 year kilns and 100 year driers.

IT MUST BE FIGURED on a quality of product basis—all the quality that your material is capable of PRODUCING.

Before you build new kilns or new drier SEE OURS.

THEY DELIVER THE GOODS—
THEY LAST—THEY STAY PUT—
THEY ARE ECONOMICAL TO BUILD—
TO OPERATE—TO OWN.

Nine 27-foot kilns and nine Drier Tunnels are producing 60,000 per day at the Dixie Brick Company.

*Better look into this before you build
It will pay you*

THE MINTER SYSTEM

—200 lbs. coal per ton of ware—

Albany

GEORGIA

Columbus



THE DIXIE PLANT

SIL-O-CEL

PREVENTS HEAT PENETRATION

TRADE MARK REGISTERED U.S. PATENT OFFICE

SIL-O-CEL

SIL-O-CEL

SIL-O-CEL

SIL-O-CEL

**Concentration of heat where
heat is wanted—**

**Control of heat where con-
trol is needed—**

**Utilization of heat units for
the purpose intended—**

*These are three of the
results accomplished by Sil-
O-Cel Heat Insulation.*

Sil-O-Cel is a microscopically porous, siliceous material which possesses the lowest heat conductivity of any insulation suitable for high temperatures. Extremely light in weight, it possesses great structural strength and can be furnished in forms which stand without shrinkage direct heats of 2200°F.

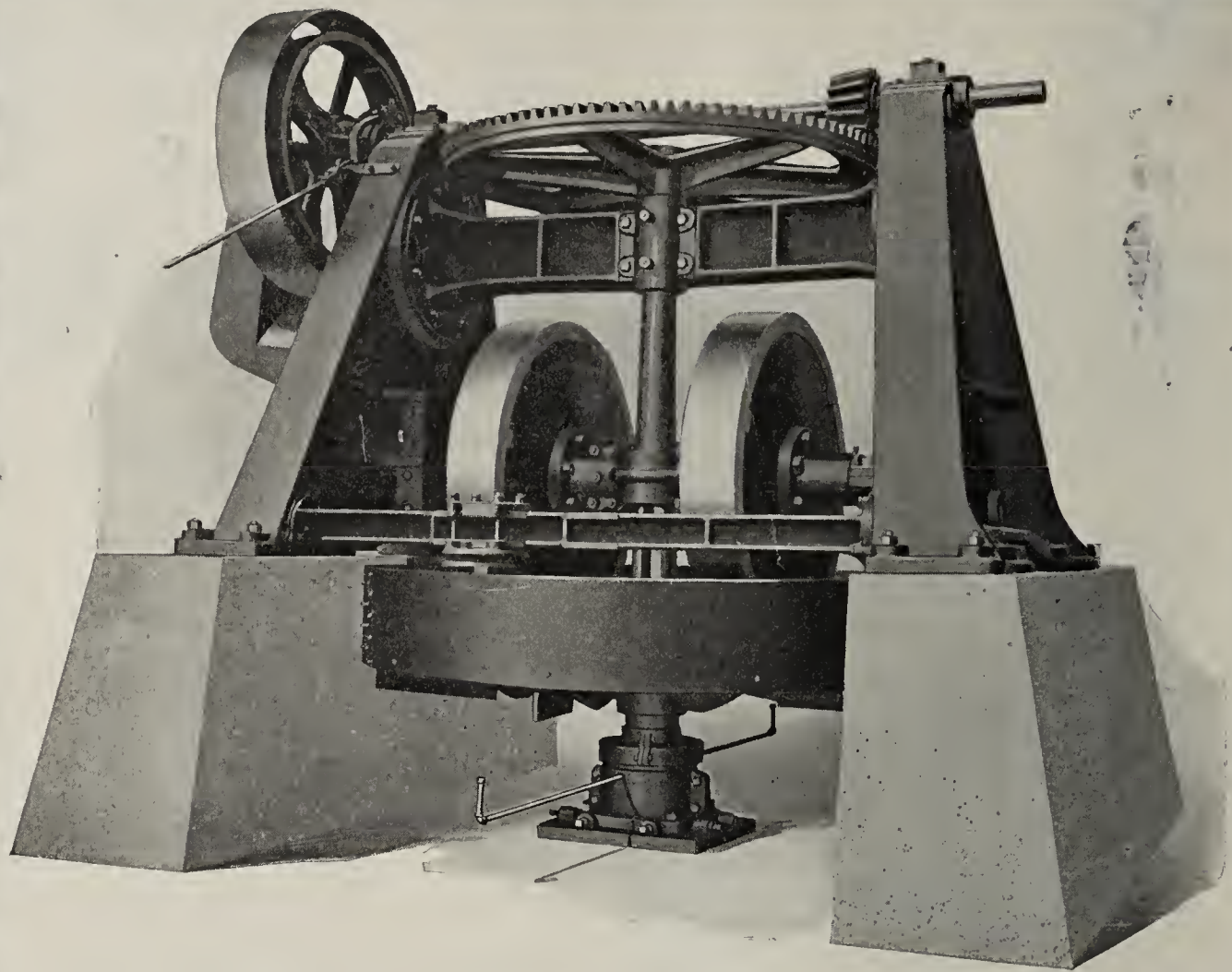
Brick, block, powder, cement,—
a form of insulation for any type of
heated equipment without change in
design.

Write nearest office for complete
information given in Bulletin B-5 A.

CELITE PRODUCTS COMPANY

New York 11 Broadway Chicago 53 W. Jackson Blvd. San Francisco Monadnock Bldg.
Baltimore • Boston • Buffalo • Cincinnati • Cleveland • Denver • Detroit
Los Angeles • New Orleans • Philadelphia • Pittsburgh • St. Louis
CELITE PRODUCTS LIMITED, New Birks Bldg., Montreal, Canada





Bonnot 10 Foot Dry Pan

Satisfactory in Every Respect

Actual tests in plants using the Bonnot 10 Foot Dry Pan show that it grinds twice as much as a 9 foot pan, and uses very little additional horsepower.

The stretchers and bed-plates in this machine are cast steel. The mullers are 62" diameter and have 10" face.

No effort has been spared to produce a pan that will grind for years at a low cost.

The Bonnot Company
CANTON, OHIO

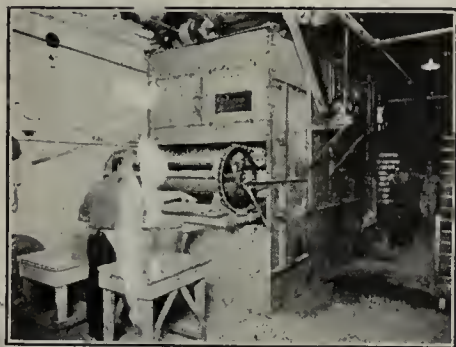
"LET US STANDARDIZE YOUR PLANT"

Write for specifications and name of nearest user so that you can satisfy yourself with first hand information.



206-207

Good Examples of Plant Betterment



Automatic Mangle for Dipped Ware



Automatic Store Room for General Ware

“Proctor” Drying Machines have made far-reaching improvements in Clay Plants of all kinds

The Plant Betterment Campaign is on.

The object of this campaign is to convince Clayware Manufacturers that they should install modern methods that have been tested and proved better than old methods.

“Proctor” Drying Machines are splendid examples of the most modern drying methods and have been thoroughly tested and proved better than all other methods.

There is an abundance of proof—leading plants producing Electrical Porcelain, General Ware, Saggers, Sanitary Ware, Chemical Stoneware, Refractories, Tile, etc., are using “Proctor” Dryers and all indorse their wonderful advantages over other equipment.

With “Proctor” Dryers the ware is dried perfectly and in the shortest possible time. Large insulators, for instance, are being dried in 30 to 60 hours, where old methods required 10 to 30 days. Handling is greatly reduced and made more systematic. There are great savings in labor and space. The percentage of first quality ware is increased. Costs are cut to the bone.

“Proctor” Dryers are superior examples of modern drying machines in every detail of design and construction. The makers have had the longest and broadest experience in their line.

Write and learn about the “Proctor” Dryer suited for your product.

PROCTOR & SCHWARTZ, INC.

PHILADELPHIA, PA.



Automatic Conveyor Dryer for Saggers



Tunnel-Truck Humidity Dryer for Electrical Porcelain, Chemical Stoneware, Tile, etc.



Tunnel-Car Dryer for Brick and Heavy Clay Products

LEVIATHAN Conveyor Belts

—tough all the way through!

When you consider buying a conveyor belt, make sure it possesses three qualities:

1. Toughness
2. Toughness
3. Toughness

If it's tough on the *conveying surface*, tough in the *middle* and tough on the *driving surface*, it's a good conveyor, no matter who makes it or what it's made of.

Toughness that goes *all the way through* is the only kind of toughness worth paying money for, because when the surface wears off you've got a new tough surface underneath.

LEVIATHAN is tough—*all the way through*.

It would be tough even without any impregnating material, because it is *Tensated*.

Tensation is an exclusive process that makes LEVIATHAN the *densest* belt

known. This means that abrasive dust and particles have the hardest kind of time working into the fibres.

Then add the impregnating material.

This material is the result of hundreds of experiments in our own chemical laboratory with special testing apparatus of our own design. It won't crack in cold weather. It stays hard in heat. It is waterproof. It resists acids and steam. When forced into the fibres of LEVIATHAN, it forms an almost impregnable shield against abrasion.

LEVIATHAN is the *toughest* belt made.

You be the judge—try it and compare it with the best conveyors you have ever used.

We'll be glad to send you our booklet on "Conveyor Problems and Their Solution."



MAIN BELTING COMPANY, Philadelphia

New York

Boston

Chicago

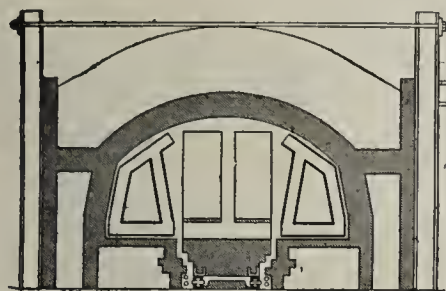
Pittsburgh

San Francisco

Main Belting Company of Canada, LTD., Montreal

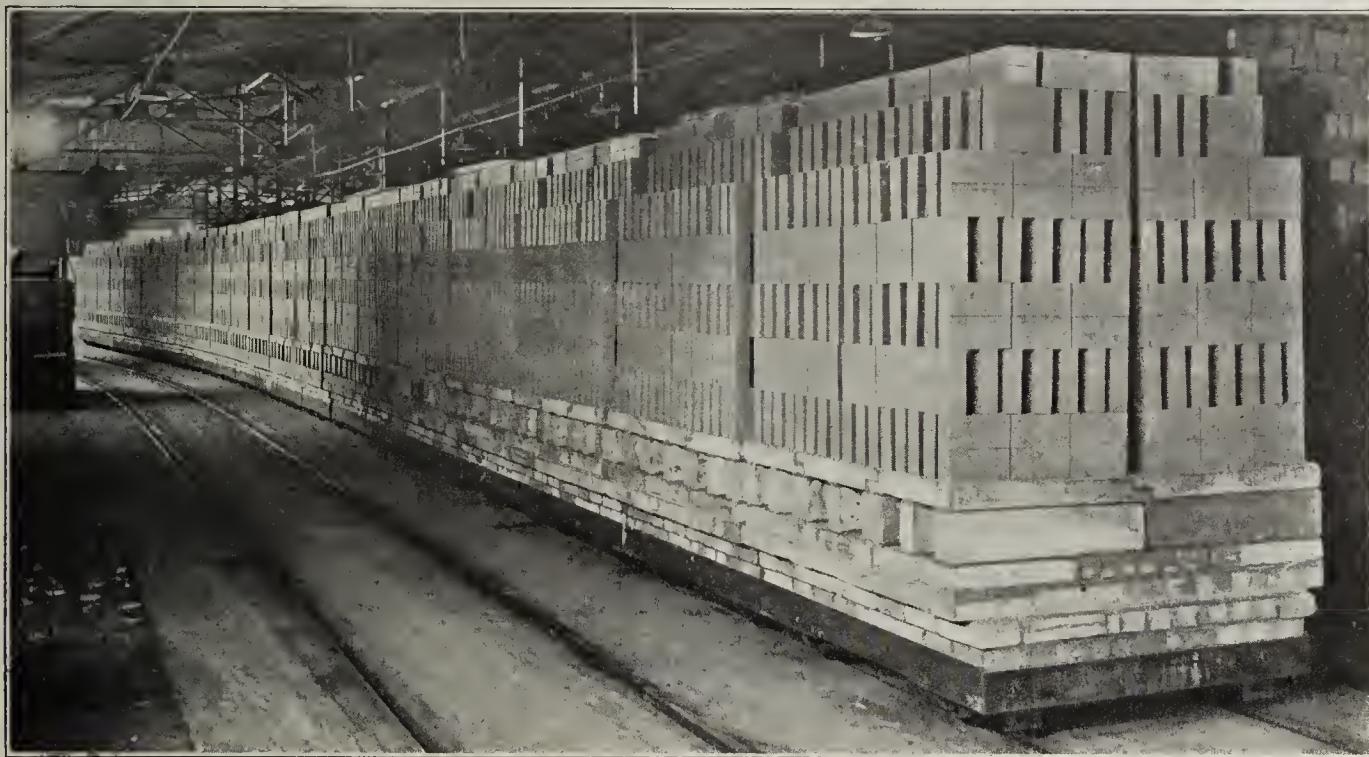
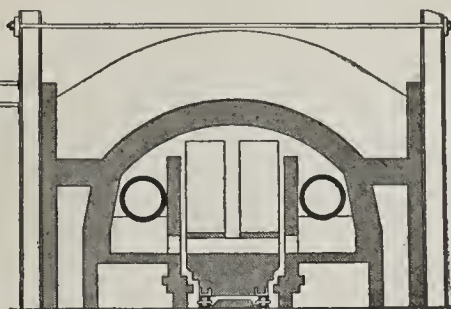
Leviathan AND Anaconda Belts

TENSATED TO REMOVE STRETCH



THE KILN OF SURE CONTROL

**AMERICAN
♦ DRESSLER ♦
TUNNEL KILN**



American Dressler Tunnel Kiln burning 1,000,000 Famous "BRADFORD REDS" per month. Bradford Brick & Tile Co., Bradford, Pa.

INCREASED PRODUCTION - - LOWERED COSTS

That's what you're looking for—and so are we.

Dressler engineers know that in order to sell you a Dressler Tunnel Kiln, they must prove Dressler Kilns are capable of giving you more and better production at less cost than by other methods.

Dressler Kilns are the **only** Tunnel Kilns actually burning commercial tonnages of coarse clay products.

Write and ask about our forty (40) successful installations burning twenty-four (24) different products.



201

American Dressler Tunnel Kilns
INCORPORATED

1740 East 12th Street

Cleveland, Ohio



Not "How Much Should It Cost?" but— "How much DOES it cost?"

PRIZES:

FIRST PRIZE, \$100.00 and a solid gold watch, 17 jewel Waltham movement, case engraved with winner's name and standing in contest.

SECOND PRIZE, \$50.00 and a solid gold watch, 17 jewel Waltham movement, case engraved with winner's name.

THIRD PRIZE, \$25.00 and a solid gold watch, 17 jewel Waltham movement, case engraved with winner's name.

FOURTH PRIZE	\$20.00
FIFTH PRIZE	\$15.00
SIXTH PRIZE	\$10.00
SEVENTH PRIZE	\$10.00
EIGHTH PRIZE	\$10.00
NINTH PRIZE	\$10.00
TENTH PRIZE	\$10.00
ELEVENTH to 20th PRIZES , inclusive, each	\$5.00

In addition to the above awards, \$5.00 will be paid for each record that is published.

JUDGES:

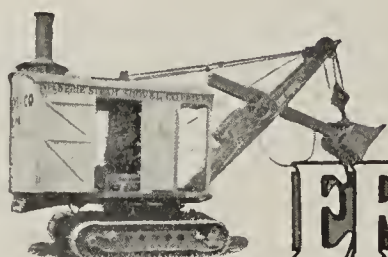
The letters will be rated, and the prizes awarded, by the following board of judges:

Arthur S. Bent, of Bent Brothers, Los Angeles, Calif., pioneer contractors on large hydro-electric and irrigation project construction; President of the Associated General Contractors of America.

Halbert P. Gillette, Editor of "Engineering and Contracting" magazine, and author of "Handbook of Cost Data," "Earth Work and its Costs" and many other engineering works.

Arthur C. Vicary, Vice-President of the ERIE Steam Shovel Co.; mechanical engineer with many years of specialized experience on steam shovel work.

In making the awards, the judges will consider the actual record made by the shovel, and also interesting and informative details that are given in addition to the actual record. If two machines were to make exactly the same record, the more interesting and informative letter would be given the higher rating; photographs also would be considered.



The buyer of excavating machinery is entitled to know the actual cost of steam shovel upkeep — *not merely five or six unusual records*, but the averages of many shovels on a wide variety of work.

Upkeep costs are important to the steam shovel owner because of the direct repair expense that is involved — but far more important is the costly loss of time while repairs are being made.

A low repair-cost record spells *steady operation*, which is the finest feature of any good piece of construction machinery — the ability to work along week after week, and month after month, without tying up the job.

IN order to provide contractors with this essential information, *the actual data on upkeep cost and steady service*, we are offering prizes for the best records made by $\frac{3}{4}$ cu. yd. shovels which have received good care. We are going to award 20 prizes ranging from a first prize of \$100.00 and a good gold watch, down to \$5.00, in addition to \$5.00 for each record that is published. (See list of prizes, at left.)

In order to avoid comparisons which might reflect unfavorably upon other makes of steam shovels, it has been decided to limit the entries to ERIE Shovels only.

How to enter the Contest

Records may be sent in by steam shovel owners, by managers, or any employee who is in direct contact with the shovel work—the superintendent, engineer, foreman or steam shovel operator. But in every case there must be a written statement by the owner of the machine, to the effect that the figures submitted are correct to the best of his knowledge.

Not more than one letter can be entered from one concern. If two or more entries covering different machines are received from one company, the best letter sent in will be considered. Contest closes December 31, 1922.

Information to be given in letter:

- (1) Approximate number of days worked by shovel since put into service.
- (2) Approximate number of cubic yards of material handled—stating how much classified as earth, how much rock, how much shale, etc.
- (3) Total amount spent for repair parts. (Do not include dipper teeth, hoisting cable, or grate bars, as these are wearing parts which need replacement on any shovel that is working, even when it receives the best possible care.)
- (4) Total lost time, during which the work was delayed for repairs to shovel.

Besides the above information, any additional details of interest should be included, together with one or more photographs of the shovel in action, if available.

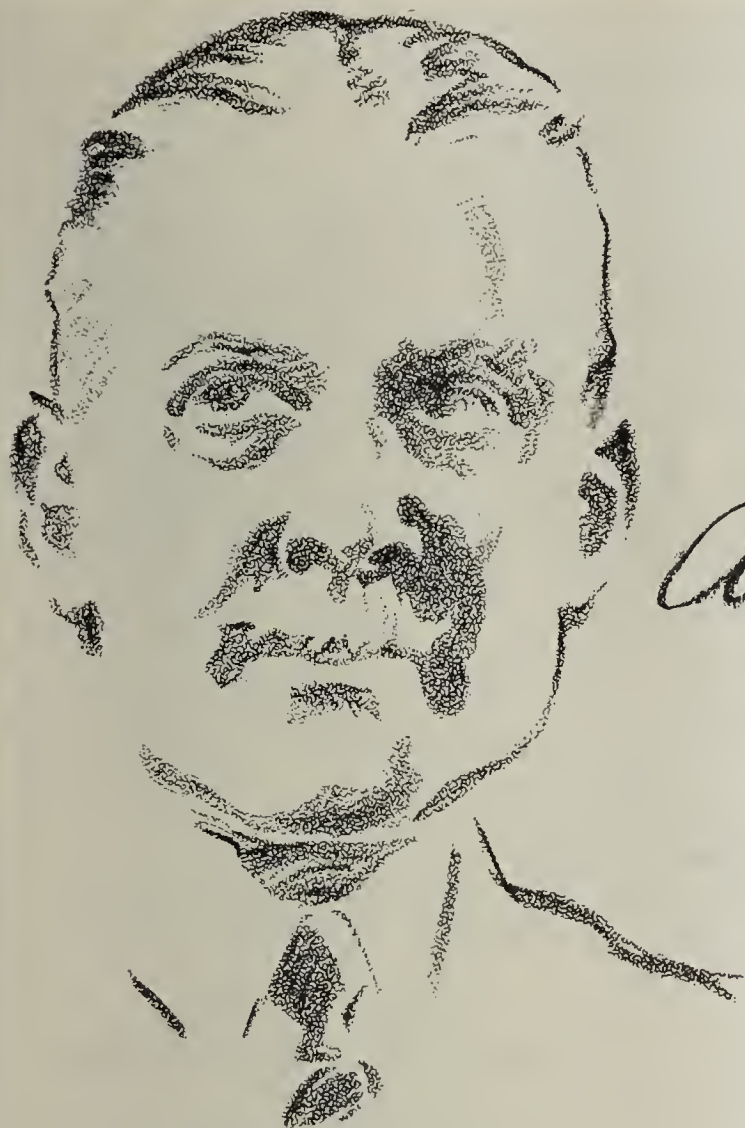
Address your letter to A. C. Vicary, *Vice-President*, ERIE Steam Shovel Co., Erie, Pa.

If your firm does not own an ERIE and you cannot enter this contest, please refer this advertisement to someone who can act upon it. Thank you!

ERIE STEAM SHOVEL CO., Erie Pa., U. S. A.
Incorporated 1883. Formerly BALL ENGINE CO.
Builders of ERIE Steam Shovels, Locomotive Cranes, Railway Ditchers.



Branch Offices: Boston, New York, Philadelphia, Pittsburgh, Chicago.
Representatives throughout the U. S. A.



*— and the
man who buys
AutoBrik says;*

Whether he be Architect, Builder, Contractor, or Brick Mason will tell you with enthusiasm that AutoBrik is the best all 'round brick he has ever used.

The Architect prefers AutoBrik because they are sand molded and capable of more artistic treatment than any brick he has heretofore specified.

The Builder likes them because, even though they are a soft mud sand molded building brick, they can be used for exteriors—at much less cost.

The Contractor likes AutoBrik because he can count on receiving a regular supply from the plant that is equipped with an AutoBrik Machine.

The Brick Mason likes AutoBrik because they lay up easily in the wall. They can be handled more roughly with a smaller percentage of bats. They can be broken to a hair line and straight across, and he can do a better job of brick laying with them than with any other brick.

Specialists in Completely Equipping Building Brick and Fire Brick Plants for the Manufacture of Brick by the Soft Mud Process.

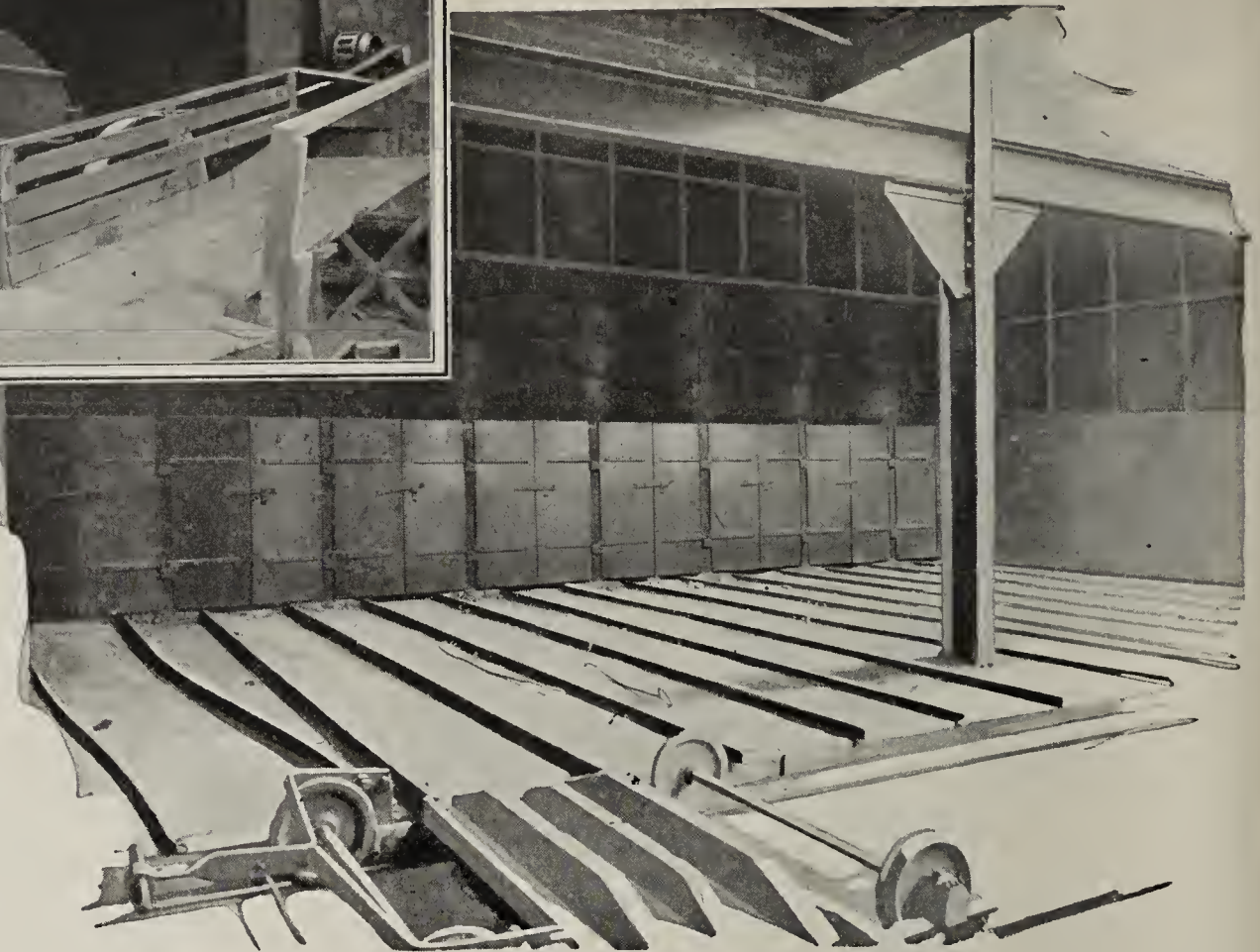
Our AutoBrik Machine sales are 400% ahead of last year. This proves that there is something doing in the brick making industry, and that we must be turning out good equipment. Think it over.

Lancaster Iron Works, Inc.

Lancaster, Penna.

Brick Machinery Department, JAMES P. MARTIN, Mgr.

AutoBrik Machine



Save Coal—Utilize Waste Heat

In a plant turning out 50,000 common brick a day there is available for drying green brick approximately seventy-seven million heat units per day, the equivalent of 100 Boiler Horsepower—heat that ordinarily is wasted. By means of a "Sirocco" Waste Heat Drying System this heat can be utilized and converted into a valuable asset.

These figures are based on a brick weighing $5\frac{1}{2}$ pounds and the saving varies directly with the weight of the brick made. There are, however, other important savings which must be considered besides the cost of the coal, including freight charges, handling expenses, and the cost of equipment to convert the heat in the coal into heat available for drying purposes.

A great many plants are now utilizing this waste heat to dry green brick. They can afford to dry their brick thoroughly and this fact decreases loss from breakage; decreases the period of time for water smoking and cost of burning; and drawing the outside air through the kiln greatly lessens the time for cooling and consequently increases the output of the plant.

Our engineers will be glad to assist you in solving your problems and in selecting the proper "Sirocco" equipment for your plant.

Sirocco" Fan and section of plant of Ashland Fire Brick Company where green brick are dried previous to burning.

AMERICAN BLOWER COMPANY, DETROIT
BRANCH OFFICES IN ALL PRINCIPAL CITIES
CANADIAN SIROCCO COMPANY, LIMITED, WINDSOR, ONTARIO (164)

"Sirocco" Products
TRADE MARK
FOR HEATING, VENTILATING, DRYING,
AIR CONDITIONING, MECHANICAL DRAFT
BLOWERS • EXHAUSTERS • VENTILATING
FANS • AIR WASHERS • ENGINES

The Winter Shovel

The Thew Electric is THE Winter shovel for shale or clay. It is the shovel for the manufacturer of clay products who wants to operate on an economical basis all year around.

It has the same range and flexibility as the Thew steam shovel. Except for gearing to a single source of power it is identical in design and construction.

With the electric you will save on fuel and maintenance cost. You won't have to have a night watchman and a fireman. The shovel is always ready for work and easy to run. With the Thew enclosed house, running even in zero weather is not uncomfortable.

The Camp Bros. Company of Mogadore, Ohio, own this winter shovel. They have been using Thews for ten years. Get their opinion of it.

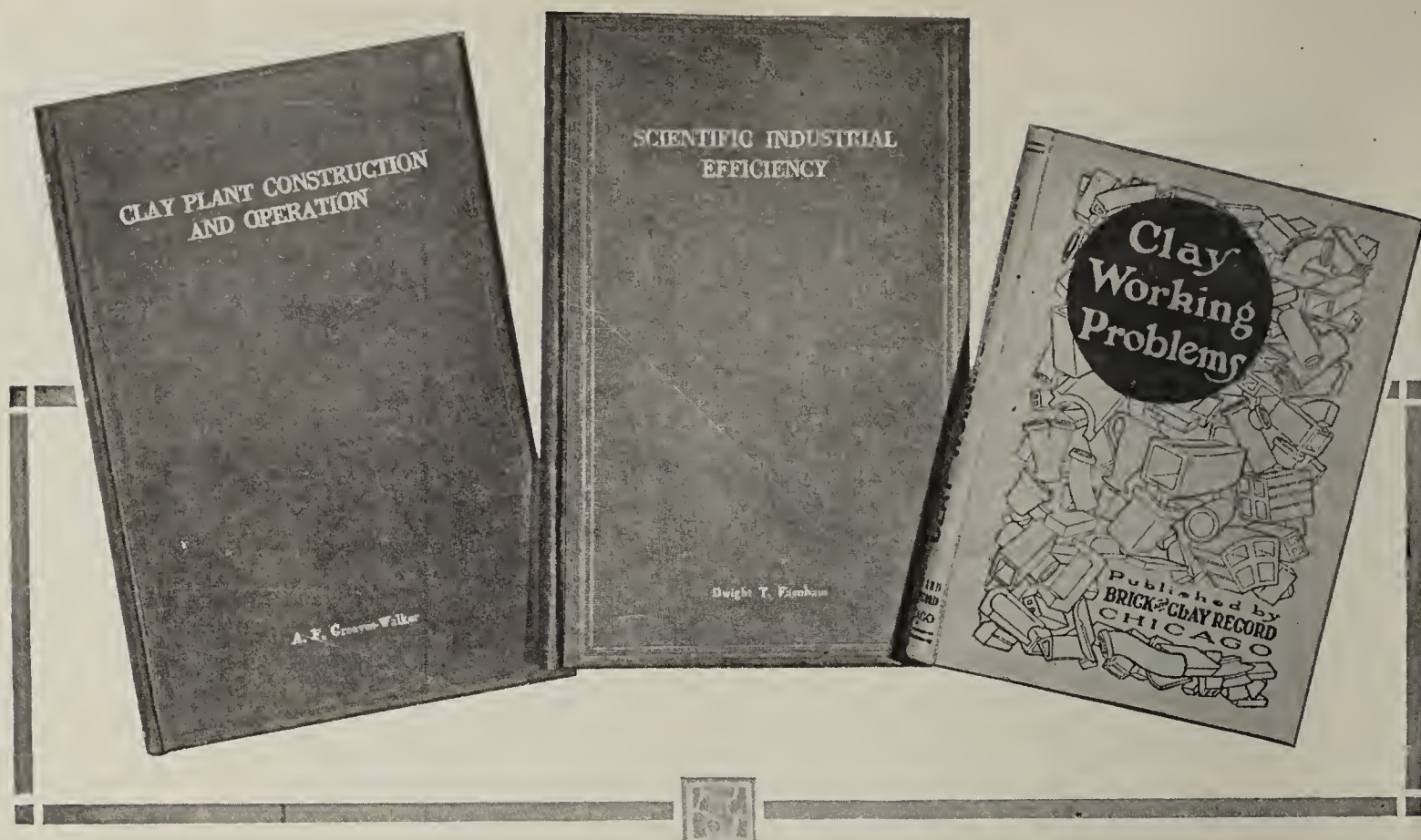
Or write for your copy of Bulletin 201.

THE THEW SHOVEL COMPANY
LORAIN, OHIO



Thew Power Shovels





Our Contribution to Your Library

Within the past half decade, *Brick and Clay Record* has added to the permanent collection of ceramic literature, not only in America, but also abroad, at least three noteworthy volumes in attractive cloth binding.

Most American clay products manufacturers are thoroly familiar with the situation as it concerned clayworking literature as early as five years ago. Many of the books in the average clay worker's library were of foreign production—books written by English, French and German ceramists covering clay plant practices in their respective countries—very good books in their time but wholly inadequate for the American clayworker working under conditions vastly different from his European colleagues.

Seeing the need of ceramic literature with a distinctly American viewpoint, the editors of *Brick and Clay Record* set about to supply the need. What you see in the illustration above is the result of our labors.

"Clay Plant Construction and Operation," is our most recent production. It ought to have a place as a text book in every university or college that maintains a course in ceramic engineering. It is written by A. F. Greaves-Walker, a ceramic engi-

neer with a wealth of practical experience in the business. The price of this handsomely bound volume is \$4.00 postpaid.

"Scientific Industrial Efficiency," by Dwight T. Farnham, a prominent industrial engineer in the clay products manufacturing industry, has now been on the market for more than two years, enjoying a phenomenal sale, not only in the clayworking industry, but also among manufacturers in many other lines. This book is considered to be a standard reference work wherever scientific industrial efficiency is being considered. The price of this book is only \$2.00 postpaid.

"Clayworking Problems" is to the clay plant as the veteran medical adviser is to the home. It is consulted in times of distress—when the plant or any part thereof is "sick." There is only a very limited quantity of this book left which means that if you have not secured your copy as yet you had better make no further delay. The price is only \$1.50 postpaid.

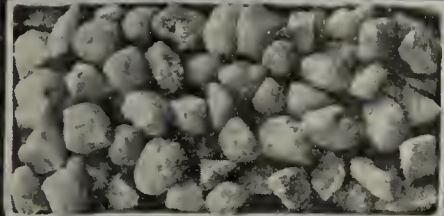
These three valuable books are our contribution to your clayworking library. Are they there in your bookcase? If not, better order at once, the missing volumes. Send your check, money order, or draft to

BRICK & CLAY RECORD'S Book Department, 407 S. Dearborn St. Chicago, Ill.

Look At These Separations



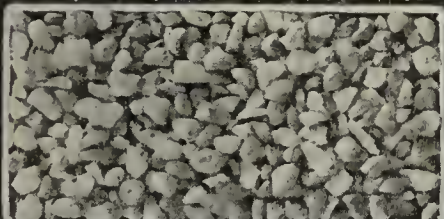
On 3½ Mesh .194" Opg.



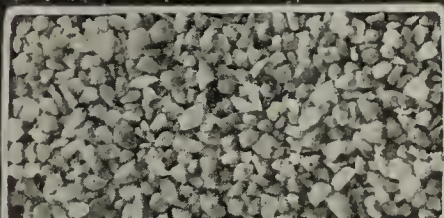
Thru 3½ Mesh .194" Opg. On 4 Mesh .170" Opg.



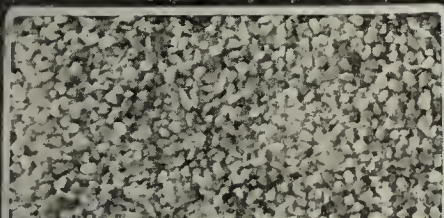
Thru 4 Mesh .170" Opg. On 6 Mesh .126" Opg.



Thru 6 Mesh .126" Opg. On 8 Mesh .096" Opg.



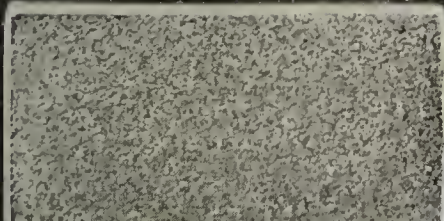
Thru 8 Mesh .096" Opg. On 10 Mesh .065" Opg.



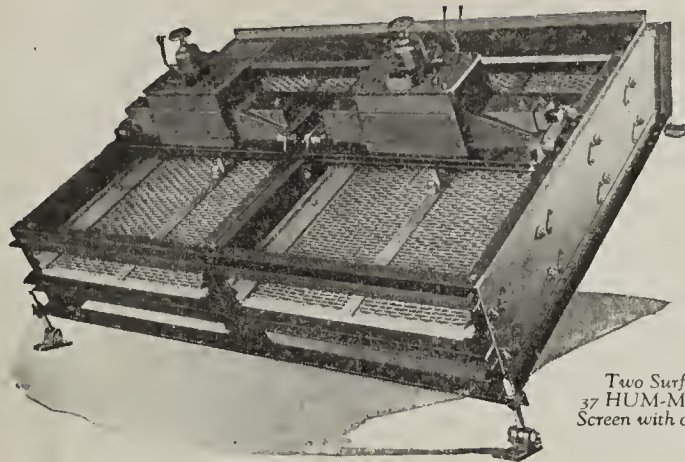
Thru 10 Mesh .065" Opg. On 14 Mesh .043" Opg.



Thru 14 Mesh .043" Opg. On 26 Mesh .025" Opg.



Thru 26 Mesh .025" Opg. On 40 Mesh .015" Opg.



Two Surface Type
37 HUM-MER Electric
Screen with open bottom

CLOSE GRADING!

What is screening, but a process of measuring and sorting immense quantities of particles to a given size?

The HUM-MER Electric Screen, in combining accuracy and thorough separation with volume of output, excels any other existing screening device.

The HUM-MER is not only handling larger tonnages per sq. ft. of area than any other screen, it also produces a sharp, clean separation of the material.

Note the sharp separations in the samples of silica produced with the HUM-MER! Note the freedom of each size from particles of finer size! Here is a character of sorting action that is enabling many producers to save and earn thousands of dollars over other means of separation.

Any division of material between 2½-inch diameter and 200 mesh can be made with HUM-MER Electric Screens.

Investigate this remarkable screening process! Let us demonstrate by tests with samples of your material what it would do for you!

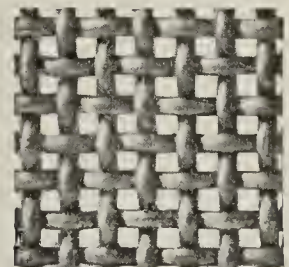
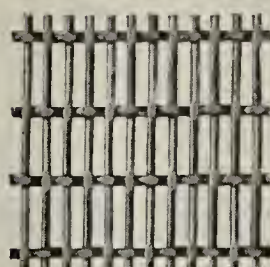
Catalogue 45-B will be sent to you upon request.

THE W. S. TYLER COMPANY

CLEVELAND, OHIO

Manufacturers of

Woven Wire Screens and Screening Equipment





For Severe Service

Successful performance for many years of the Westinghouse CW Motor has gained for it a high reputation in the brick and clay industries.

This motor has distinctive features which make it particularly adaptable for heavy duty.

Some of these features are: Strong starting effort, with small starting current; high efficiency; rugged construction; few parts—making maintenance easy; dust-proof bearings.

Electrical Equipment

Generating Equipment
Stokers

Switchboards
Motors and Control

Westinghouse Electric & Manufacturing Company

East Pittsburgh, Pa.

Westinghouse

GANDY *is a* BETTER BELT



"But the Gandy Wouldn't Stretch"

"I ORDERED that piece of Gandy Belt 8 inches short and spliced in the shim, to allow for stretch," said Mr. T. H. Mitchell, manager of the Salisbury Brick Company, "but"—he continued—"the Gandy wouldn't stretch."

It is inbuilt quality—close weaving, smooth folding, tight stitching, careful stretching and the famous Gandy oil treatment that makes Gandy Stitched Cotton Duck Belting the best for Main Drives, Elevators and Conveyors.

Order a Gandy from your Mill Supply House, or direct from us if they can't supply you—test Gandy service in your own plant.

"It's the belt with the Green Edge"

—THE—
GANDY BELTING COMPANY

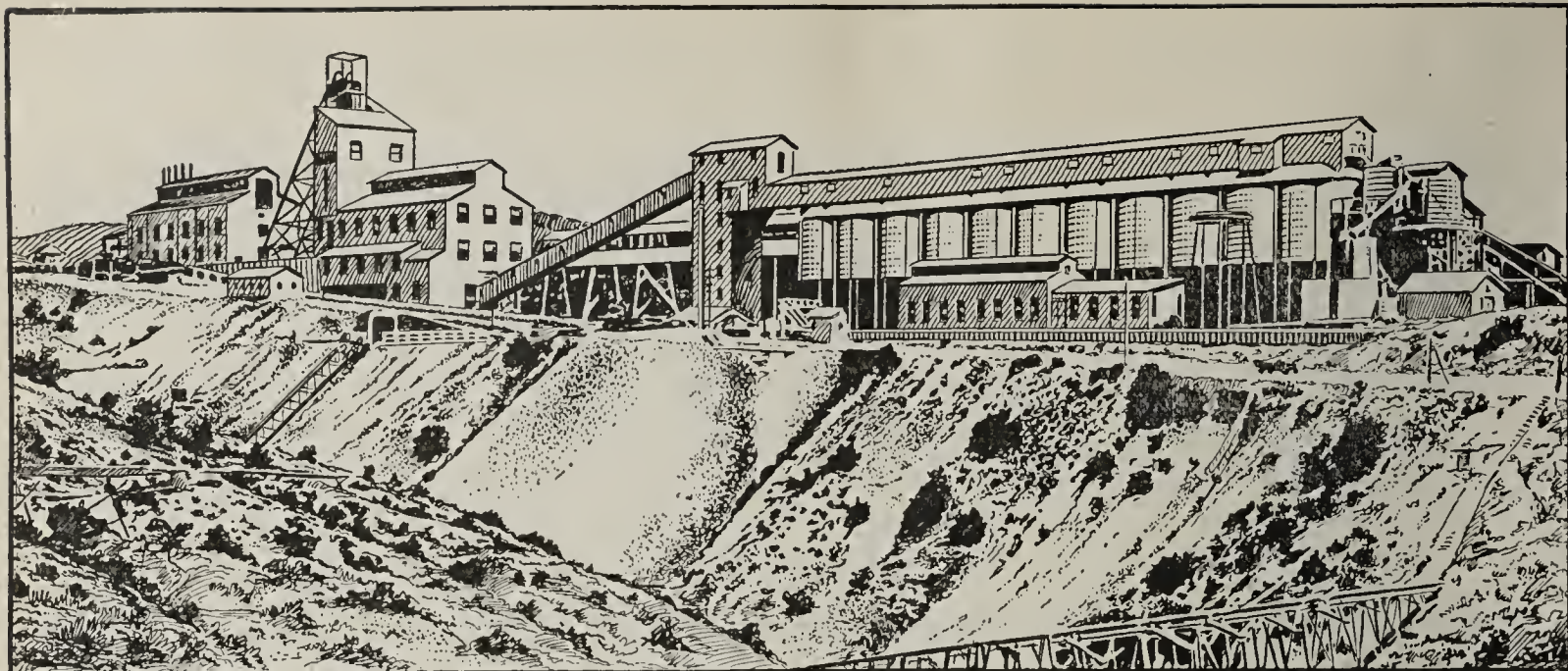
MAIN OFFICE AND FACTORY: 732 WEST PRATT ST., BALTIMORE, MD.
NEW YORK: 36 WARREN STREET CHICAGO: 552 W. ADAMS STREET



GANDY

STITCHED COTTON DUCK

BELT

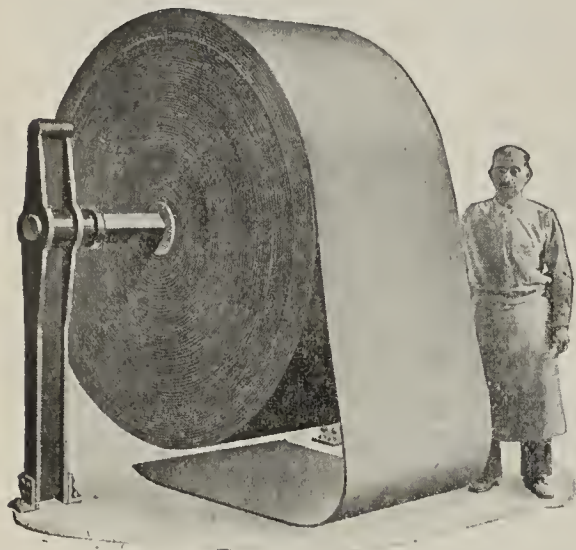


Conveying 9,357,000 Tons of Ore with One Belt

*Read this Remarkable Record made
at Miami Copper Company's Mine*

Seven years' service from this conveyor belt is the record run made at Miami, a period of usefulness extending through the rush of war production.

The belt cost for conveying this huge quantity of ore is 66/1000 of a cent per ton, truly a remarkable figure for any service.



Width of belt 30 inches
Number of plies 6
Thickness of cover 1/8 inch
Conveyor Side 1/8 inch
Pulley side 1/8 inch
Date installed March 11, 1911
Date taken off June 1, 1918

This belt was installed in two sections. The inclined belt, operating at angle of $31\frac{1}{2}$ inches in 12 inches is 530 feet in length, and the horizontal belt, which distributes ore to the bins, is 680 feet long.

This installation is an example of a conveyor belt designed by our belt men after careful investigation of all the operating conditions.

These facts determine the character of the rubber compounds used,

the kind and weight of duck, and the correct number of plies.

The result is a belt of wear-defying construction that comes through the test of heavy mining work with cost figures well on the credit side.

Before you buy another conveyor belt, send us the particulars regarding your requirements and we will gladly make recommendations for a suitable belt and submit costs.



NEW YORK BELTING & PACKING CO.

New York
Boston
Chicago

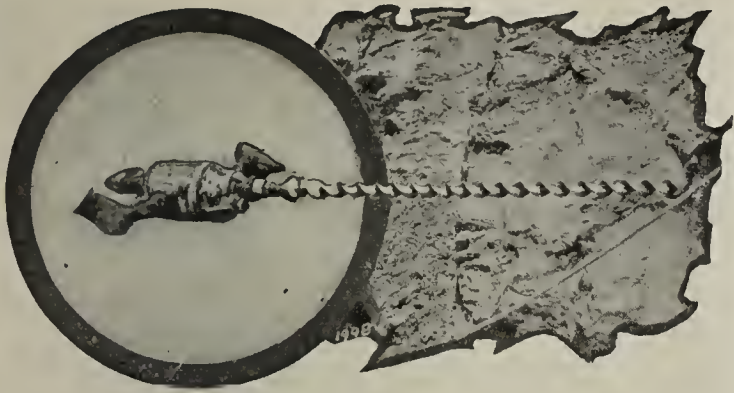
El Paso
Philadelphia
Pittsburgh

St. Louis
Salt Lake City
San Francisco



Page 234

CONVEYOR BELTING FOR HEAVY SERVICE



Put Your Shot-Hole Drilling on a production basis

In coal, clay and shale mines, Little Giant Electric Coal Drills are daily cutting shot-hole drilling costs.

Through plastic, semi-plastic and flint clay, the Little Giant Electric Coal Drill illustrated, serving the A. P. Green Fire Brick Company, Mexico, Mo., drilled fourteen four-foot shot-holes while one four-foot hole was drilled the hand-auger way.

Speed up and economize drilling and repair work in your plant. Use Little Giants. Available for operation on D. C., or single, two or three-phase A. C. Address nearest Branch for trial drill.

Chicago Pneumatic Tool Company
Chicago Pneumatic Building, 6 East 44th St., New York
Sales and Service Branches all over the World

* BIRMINGHAM	* DETROIT	* LOS ANGELES	* PHILADELPHIA	* SEATTLE
* BOSTON	* EL PASO	* MILWAUKEE	* PITTSBURGH	* ST. LOUIS
* CHICAGO	* IRIE	* MINNEAPOLIS	* RICHMOND	
* CINCINNATI	* FRANKLIN	* NEW ORLEANS	* SALT LAKE CITY	
* CLEVELAND	* HOUSTON	* NEW YORK	* SAN FRANCISCO	

R-27

BOYER PNEUMATIC HAMMERS - LITTLE GIANT PNEUMATIC AND ELECTRIC TOOLS
CHICAGO PNEUMATIC AIR COMPRESSOR - VACUUM PUMPS - PNEUMATIC HOISTS
GIANT OIL AND GAS ENGINES - ROCK DRILLS - COAL DRILLS

LITTLE

Coal



GIANT

Drills



Silent Helical Gears

While we are on the Subject

We didn't tell you in the October issue all we do in our efforts to make the best gears in the world. We are always looking ahead, always seeking better materials, always improving designs.

We have developed and commercialized the Silent Helical Gear — the greatest forward step the industry has ever made. We have perfected and commercialized the heat treatment of gears until we can guarantee in any terms you want that our BP gears will give four times (or more) the life of untreated gears in the same service.

And all of this is for your benefit—so you can make better brick and clay products—so you can save money in their making.

Let us send you booklets going into details on these subjects.

R.D. NUTTALL COMPANY
PITTSBURGH  PENNSYLVANIA

Philadelphia
Office

430 Land Title Bldg.

Chicago
Office

2133 Conway Bldg.

Nuttall

Trade Names Now in Use

on Face Brick and Other Clay Products

The purpose of this directory is two-fold: it serves to prevent a manufacturer from adopting a trade-name that is already in use—and it also helps manufacturers who use it to establish priority of claim to a name.

ALLIANCE RUFFS—Alliance (O.) Brick Co.
ALUMINITE—The Lock Haven Fire Brick Company, Lock Haven, Pa.
ALUMINITE—The Stowe-Fuller Co., Cleveland, Ohio.
AMERICAN—Dixie Fireproofing Co., Macon, Ga.
ANNES HOLLOW TILE—Anness & Potter Fire Clay Co., Woodbridge, N. J.
APEX—Tri-City Brick Company, Rock Island, Ill.
ARKATEX—Southern Building Products Co., Little Rock, Ark.
ARMOR—Greenpoint Fire Brick Co., Brooklyn, N. Y.
ARMURE—Tri-City Brick Company, Rock Island, Ill.
ART-TEX—W. E. Loomis, Sherbrooke, P. Q.
ARTISTICO—Capital Clay Co., Des Moines, Ia.
ARTBRIQUE—Yingling-Martin Brick Co., Johnsonburg, Pa.
ATHENA—Hocking Valley Fire Clay Co., Nelsonville, Ohio.
BABYLONIAN—The Standard Brick Company, Crawfordsville, Ind.
BEAVERCLAY—Beaver Clay Mfg. Co., New Galilee, Pa.
BISHOP COLONIAL—Southern Brick and Tile Company, Louisville, Ky.
BRADFORD HOLLOW BUILDING TILE—Bradford Brick & Tile Co., Bradford, Pa.
BRADFORD REDS—Bradford Brick & Tile Co., Bradford, Pa.
BRADFORD RUFFS—Bradford Brick & Tile Co., Bradford, Pa.
BURLAP—Key-James Brick Co., P. O. Alton Park, Tenn.
BURMAH—Walkers Mill Stone and Brick Co., Pittsburgh, Pa.
CALEDONIAN—Fiske & Co., Inc., Boston and New York.
CHENILLE-TEX—Martinsville Brick Co., Martinsville, Ind.
CASTLE-TEX—New Castle Mining and Clay Products Co., New Castle, Pa.
CLAYCRAFT ROUGH BUFFS AND GRAYS—The Claycraft Mining and Brick Co., Columbus, Ohio.
CLAYCRAFT SMOOTH BUFFS AND GRAYS—The Claycraft Mining and Brick Co., Columbus, Ohio.
CLAYCRAFT VELOURS—The Claycraft Mining and Brick Co., Columbus, Ohio.
CLAYTEX—Walton N. Cable, New York City.
CLOISTER—Western Brick Co., Danville, Ill.
COLONIAL—Capital Clay Co., Des Moines, Ia.
CONCO CLAY PRODUCTS—H. D. Conkey & Co., Mendota, Ill.
CORALSTONE—Harris Brick Co., Zanesville, O.
CORALROSE—Harris Brick Co., Zanesville, O.
COLUMBIA—Columbia Clay Co., Columbia, S. C.
COMMUNITIES—Danville Brick Co., Manufacturers—H. D. Conkey & Co., Mendota, Ill., General Sales Agents.
CORDOVA (Roofing Tile)—Gladding, McBean & Co., San Francisco and Lincoln, Cal.
CORSWEVE—Thomas Moulding Brick Co., Chicago, Ill.
CROTON-REDS—New Castle Mining and Clay Products Co., New Castle, Pa.
CROWN—Green Fire Brick Co., A. P., Mexico, Mo.
DENISON—Mason City (Ia.) Brick & Tile Co.
DE LUXE—The Standard Brick Company, Crawfordsville, Ind.
DIAMOND—Missouri Fire Brick Co., St. Louis, Mo.
DIXIE—Dixie Fireproofing Co., Macon, Ga.
DORIC—Western Brick Co., Danville, Ill.
DUNBAR—United Refractories Co., Uniontown, Pa.
EGYPTIAN PAVING BLOCK—Murphysboro (Ill.) Paving Brick Co.
E. F. B. Co.—Elk Fire Brick Co., St. Marys, Pa.
ELKCO—Elk Fire Brick Co., St. Marys, Pa.
ELKCO SPECIAL—Elk Fire Brick Co., St. Marys, Pa.
ELK STEEL—Elk Fire Brick Co., St. Marys, Pa.
EMBOSTEX—Streator (Ill.) Brick Co.
EMPIRE—Green Fire Brick Co., A. P., Mexico, Mo.
EMPIRE—The Minor Fire Brick Company, Empire, Ohio.
EMPIRE—Western Brick Co., Danville, Ill.
EVERHARD ANTIQUE—Everhard Co., Massillon, O.
EVERHARD CORINTHIANS—Everhard Co., Massillon, Ohio.
EVERHARD DOUBLE-TEXTURE—Everhard Co., Massillon, Ohio.
EVERHARD FERN-LEAF—Everhard Co., Massillon, Ohio.

EVERLASTING—Mason City (Ia.) Brick & Tile Co.
FALLSTON IRON SPOTS—Fallston Fire Clay Co., Pittsburgh, Pa.
FALLTEX—Fallston Fire Clay Co., Pittsburgh, Pa.
FISKLOCK—Fiske & Co., Inc., Boston and New York.
FRASERCLAY—Fraser Brick Co., Dallas Texas.
F. R. C. CHROME—Federal Refractories Company, Alexandria, Pa.
F. R. C. MAGNESITE—Federal Refractories Company, Alexandria, Pa.
F. R. C. SILICA—Federal Refractories Company, Alexandria, Pa.
FROSTBURG RED COMMON BUILDERS—Savage Mountain Fire Brick Co., Frostburg, Md.
FROSTBURG ROUGH TEXTURE—Savage Mountain Fire Brick Co., Frostburg, Md.
FROSTBURG RED HOLLOW TILE—Savage Mountain Fire Brick Co., Frostburg, Md.
FUL-TONE—Fultonham-Texture Brick Co., East Fultonham, Ohio.
FULTONHAM-TEXTURE—Fultonham-Texture Brick Co., East Fultonham, Ohio.
GLONINGER IRON SPOTS—Gloninger & Co., Pittsburgh, Pa.
GOTHIC—Western Brick Co., Danville, Ill.
GREENDALES—Hocking Valley Pro. Co., Columbus, O.
GREENDALE RED RUGS—Hocking Valley Pro. Co., Columbus, O.
GREENDALE RUGS—Hocking Valley Pro. Co., Columbus, O.
GRID—Fiske & Co., Inc., Boston and New York.
HAWK-I-TEX—Capital Clay Co., Des Moines, Ia.
HEATHER-TEX—New Castle Mining and Clay Products Co., New Castle, Pa.
HI-GRADE—Southwest Building Supply Co., Springfield, Mo.
HOCKING BLOCK—Hocking Valley Brick Co., Columbus, O.
HOLLAND SPLIT—Thomas Moulding Brick Co., Chicago, Ill.
HOMESPUN—Thomas Moulding Brick Co., Chicago, Ill.
HY-TEX—Hydraulic-Press Brick Co., St. Louis, Mo.
INTERLOCKING TILE—Fraser Brick Co., Dallas, Texas.
IRONCLAY—Iron Clay Brick Co., Columbus, Ohio.
IRONSTONE—Salt Lake Pressed Brick Co., Salt Lake City, Utah.
KELSO—Hayes Run Fire Brick Co., Orviston, Pa.
KEYSTONE—Elk Fire Brick Co., St. Marys, Pa.
LADLE—The Zoar Fire Clay Company, Zoar, Ohio.
LAKE SHORE MINGLED SHADES—The Burton-Townsend Co., Zanesville, O.
LAKE SHORE BLOCK—The Burton-Townsend Co., Zanesville, Ohio.
L. H. STEEL—The Lock Haven Fire Brick Company, Lock Haven, Pa.
LO-TEX BRICK—The Longmont (Colo.) Brick & Tile Co.
LO-TEX TILE—The Longmont (Colo.) Brick & Tile Co.
LOZENGE—Tri-City Brick Company, Rock Island, Ill.
MARCEL—Tri-City Brick Company, Rock Island, Ill.
M. D. ELK—Elk Fire Brick Co., St. Marys, Pa.
MEDAL BLOCK—Medal Paving Brick Co., Cleveland, Ohio.
METALTEX—Columbia Clay Co., Columbia, S. C.
MEXICO, MO.—Green Fire Brick Co., A. P. Mexico, Mo.
MINOR—The Minor Fire Brick Company, Empire, Ohio.
MITCHELL EXTRA—Mitchell Clay Mfg. Co., St. Louis, Mo.
MITCHELL SUPERIOR—Mitchell Clay Mfg. Co., St. Louis, Mo.
MITCHELL NO. 1—Mitchell Clay Mfg. Co., St. Louis, Mo.
MOBRIQUE—Harris Brick Co., Zanesville, O.
MONTEZUMA RED FACE—Montezuma (Ind.) Brick Works.
MOSAIC—Western Brick Co., Danville, Ill.
NATIONAL—The National Fire Brick Company, Strasburg, Ohio.
NO. 1—J. H. Gautier & Co., Jersey City, N. J.
NONPAREIL—Armstrong Cork & Insulation Co., Pittsburgh, Pa.
NORTRUF—Tri-City Brick Company, Rock Island, Ill.

NUMATZ—Tri-City Brick Company, Rock Island, Ill.
NUVOGUE—Boone (Ia.) Brick, Tile & Pav. Co.
OIL—J. H. Gautier & Co., Jersey City, N. J.
OLD HOMESTEAD—Burton-Townsend Co., Zanesville, Ohio.
OLD ROSE COLONIAL—Montezuma (Ind.) Brick Works.
OLEAN BLOCK—Sterling Brick Co., Olean, N. Y.
OXFORD—Southern Brick and Tile Company, Louisville, Ky.
PASTELS—The Standard Brick Co. Crawfordsville, Indiana
PATRICIANS—Danville Brick Co., Manufacturers—H. D. Conkey & Co., Mendota, Ill., General Sales Agents.
PENN.—The Lock Haven Fire Brick Company, Lock Haven, Pa.
PERFEKT—Tri-City Brick Company, Rock Island, Ill.
PERSIAN SPLIT—Thomas Moulding Brick Co., Chicago, Ill.
POS-TEX—Poston Brick Co., Springfield, Ill.
POTOMAC-SAVAGE—Savage Mountain Fire Brick Co., Frostburg, Md.
"POTTRY"—B. Mifflin Hood Brick Co., Atlanta, Ga.
PROMENADE—Yingling-Martin Brick Co., Johnsonburg, Pa.
RAINBOW—Burton Townsend Co., The, Zanesville, Ohio.
RED ROCK RUFFS—Auburn Shale Brick Co., Auburn, Pa.
ROTEX—Elk Fire Brick Co., St. Marys, Pa.
ROYAL HA-SIERS—Decatur Brick Mfg. Co., Decatur, Ill.
RUBYTEX—Columbia Clay Co., Columbia, S. C.
RUFTEX—Thomas Moulding Brick Co., Chicago, Ill.
RUG—Hocking Valley Pro. Co., Columbus, O.
RUSTIQUE ORIENTAL—Martinsville (Ind.) Bk. Co.
ST. MARYS—Elk Fire Brick Co., St. Marys, Pa.
SAVAGE MOUNTAIN—Savage Mountain Fire Brick Co., Frostburg, Md.
SHALE-TEX—Streator (Ill.) Brick Co.
SIL-O-CEL—Celite Products Co., Chicago, Ill.
S. M.—Savage Mountain Fire Brick Co., Frostburg, Md.
S. M. A.—Savage Mountain Fire Brick Co., Frostburg, Md.
M. EXTRA—Savage Mountain Fire Brick Co., Frostburg, Md.
SPECIAL—Green Fire Brick Co., A. P., Mexico, Mo.
SPEEDWAY BLOCK—Alliance (O.) Clay Prod. Co.
STANDARD—Green Fire Brick Co., A. P., Mexico, Mo.
STANDARD—The National Fire Brick Company, Strasburg, Ohio.
SUPER—Dixie Fireproofing Co., Macon, Ga.
TAPESTRY—Fiske & Co., Inc., Boston and New York.
TAVERN BRICK—Metropolitan Pav. Brick Co., Canton, O.
TEXTUR—Thomas Moulding Brick Co., Chicago, Ill.
THERMO—The Crush Brick Co., Sulphur Springs, Texas.
TIFFANY—Thomas Moulding Brick Co., Chicago, Ill.
TORONTO—Toronto Fire Clay Co., Toronto, O.
TOWNSEND BLOCK—The Burton-Townsend Co., Zanesville, Ohio.
TURKESTAN—Beaver Clay Mfg. Co., New Galilee, Pa.
TURKO—Rochester (Pa.) Clay Products Co.
TUXEDOS—Danville Brick Co., Manufacturers—H. D. Conkey & Co., Mendota, Ill., General Sales Agents.
UNITED—United Refractories Co., Uniontown, Pa.
U. R. Co.—United Refractories Co., Uniontown, Pa.
U-TEX—Fultonham-Texture Brick Co., East Fultonham, Ohio.
VERTEX—Beaver Clay Mfg. Co., New Galilee, Pa.
VITRI-CRAFT—Schuylkill Valley Vitrified Products Co., Oaks, Montgomery Co., Pa.
VOLCANIC—Beaver Clay Mfg. Co., New Galilee, Pa.
WATERPROOF—Gloninger & Co., Pittsburgh, Pa.
WIRE-CUT-LUG BRICK—Dunn Wire-Cut Lug Brick Co., Conneaut, Ohio.
YALE-TEX—Gloninger & Co., Pittsburgh, Pa.
ZOAR—The Zoar Fire Clay Company, Zoar, Ohio.

Style No. 12



A Time and Money Saver

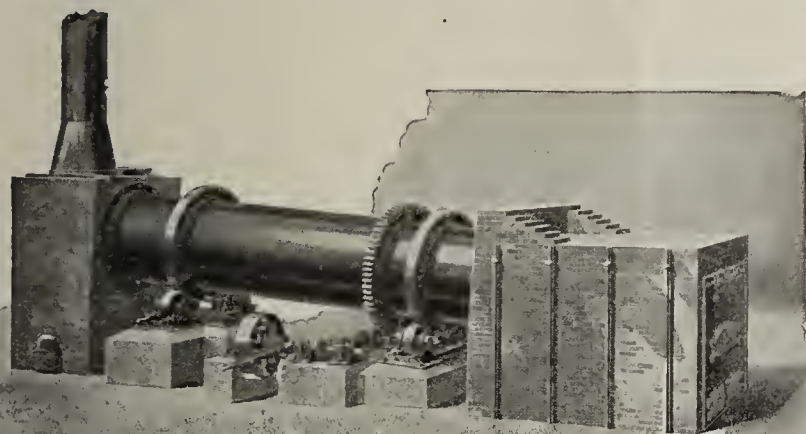
We make a Steel Pallet that is just exactly what your class of work requires

Our line of manufacture covers the entire Steel Pallet field.

No matter what pattern you need. If you require something quite out of the ordinary, so much the better. We can make it right, deliver it promptly and for the least price. Because we are specialists in this particular line.

Simply let us know what you need or send for complete descriptive matter.

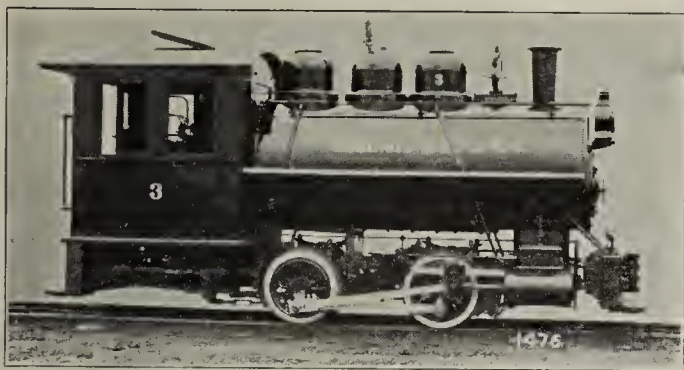
The Ohio Galvanizing & Mfg. Co.
Niles, Ohio



Rotary Dryers

We manufacture a line of Rotary Dryers covering a large range of sizes and capacities and adapted to drying clays, shales, sands, marl, slurries, fertilizers, crushed limestone and for calcining fire clays, roasting ores and handling a great variety of other materials from which moisture must be removed at low cost, or in which special heat treatment is required.

The Hadfield-Penfield Steel Co.
Formerly the American Machy. Co.
Bucyrus, Ohio



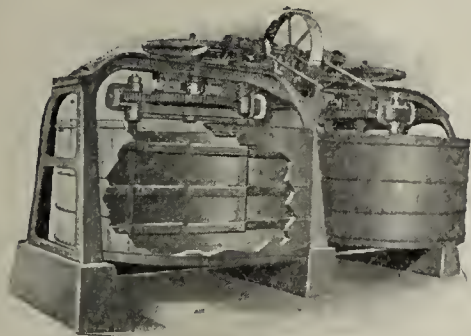
ALL TYPES—ANY SIZE—GAUGE

Davenport Locomotives for Clay Haulage

BUILT FOR SERVICE

Submit your haulage problems to us, we will make proper recommendations

Davenport Locomotive Works
Davenport, Iowa



THE MUELLER BLUNGER

has become recognized by the leading potteries and ceramic plants as a machine always ready to give reliable, durable and satisfactory service under the most severe conditions.

Catalog fully describing our complete line of Clay-Working Machinery will be gladly sent upon request.

The MUELLER MACHINE COMPANY, Inc.
TRENTON 23 Ward Ave. NEW JERSEY

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FOR three thousand years valuations were but estimates—accurate often, but seldom provable. ¶ Then, with the inception of the American Appraisal Company—in the middle nineties—came the *organization appraisal*, provable in every detail at any time. ¶ To the property owners of today we offer an appraisal service tested by thousands of users, conceived and executed on the single premise that to be worthy of the name, an appraisal must be provable.



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PENNSYLVANIA
HOTEL
New York City

McKim, Mead
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National Manganese

*Standard for
Twenty Years*

Monumental Structures like this require absolute uniformity of color of face brick. That's why the manufacturers of face brick for such buildings as this buy their manganese from

National Paint & Manganese Co.

LYNCHBURG, VA.

Grinders of High Grade, Uniform Manganese
for more than a quarter century.

Write for samples and prices

Don't Allow Lime Pebbles to Ruin Your Burned Ware

Even though your raw material contains lime pebbles, gravel or other impurities, the quality of your burned ware need not suffer. Williams Patented Steamheated Screens and Grinders are successfully overcoming these difficulties at very low cost per ton in many prominent plants. For example, the Colburn Brick and Tile Co., Zumbrota, Minn., state Williams equipment is cheaper to operate than dry-pans. Furthermore, this same equipment will grind and screen without preliminary drying wet material direct from the bank even in rainy weather, all exposed parts being steam-heated to prevent adhesion of wet material.



Tell Us Your Clay and Shale Preparation Troubles

Williams Engineers are specialists in clay and shale preparation problems, and will gladly furnish their recommendations on the proper equipment for overcoming your difficulties. Describe your raw material and the amount you wish to handle daily.

Williams Patent Crusher & Pulverizer Co.

819 Montgomery St.

St. Louis, Mo.

CHICAGO
37 W. Van Buren St.

NEW YORK
15 Park Row

SAN FRANCISCO
67 Second St.

"Were troubled a great deal with lime until we started using Williams equipment."

WINNEBAGO HOLLOW BLOCK & TILE CO.,
Winnebago, Minn.



Williams

PATENT CRUSHERS GRINDERS SHREDDERS



THE SCHOFIELD BURKETT EXCAVATOR

is suitable for any sort of excavation work, —an ideal machine for cutting costs to a minimum.

The Berlin Brick Co., Berlin, Conn., state:

"Until we installed a Schofield-Burkett excavator, eight men were employed to dig the daily tonnage of clay. Four horses and carts, in charge of four men, hauled the clay to the plant. This made a total of twelve men and four horses required. Quite a contrast to this is the present use of the drag-line, operated by one engineer, one fireman, one attendant to the excavator, one man to do the general cleaning up around the industrial cars, and one man to drive the Plymouth locomotive and haul two clay cars. This makes a total of only five men. In other words, the excavator eliminates the need for seven men and four horses and carts."

Whatever your condition, if you have an excavating problem, write us. We won't sell you an excavator unless our Engineer is convinced it will cut your costs

The Schofield-Burkett Construction Company MACON, GEORGIA

The A. J. ALSDORF CORPORATION, 404 So. Wells St., Chicago
Representative in Illinois, Michigan, and Indiana

The Anderson Brick Conveyor

eliminates rehandling of ware—cost of runways—doing away with runways entirely.

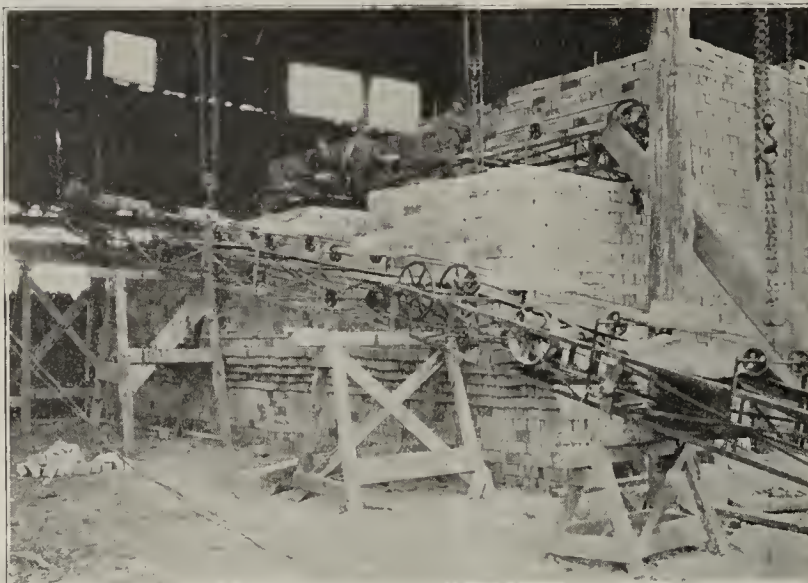
Satisfied Users

East Windsor Hill Brick Co.
Hartford, Conn.

Standard Brick Co.
New Britain, Conn.

Hillsboro Brick Co.
Hillsboro, N. D.

Robert E. Pray,
Greenfield, Mass.



Satisfied Users

Norman Coolie Brick Co.
La Crosse, Wis.

Beaumont Brick Co.
Beaumont, Texas

Baton Rouge Brick Co.
Baton Rouge, La.

L. E. Shaw,
Avonport, Nova Scotia

One of two Anderson Brick Conveyors saving time and money at plant of
Holyoke Brick Co. Holyoke, Mass.

Brick conveyed any distance, making turns automatically from dump table to kiln, dryer or car.
Eliminates the services of from 3 to 5 men.

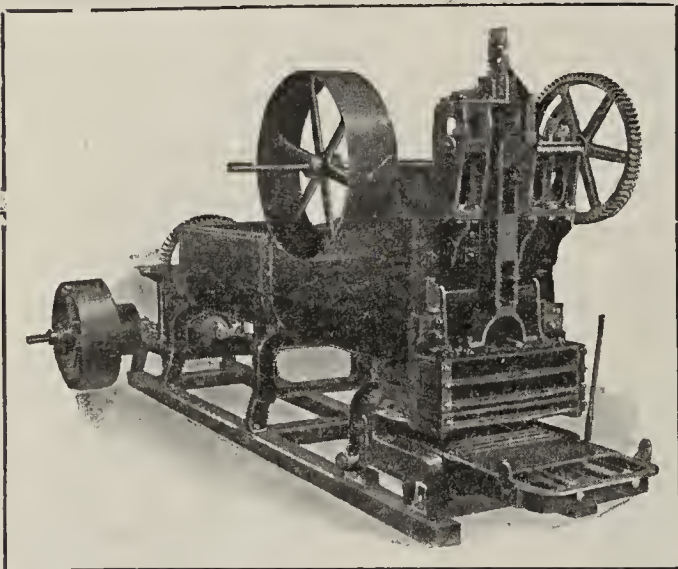
Write for Complete Information

CHAS. J. ANDERSON & SON

(Manufacturers of Anderson Brick Conveyor)

MARINETTE

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POTTS

CLAY WORKING MACHINERY

is installed in hundreds of clay plants throughout the industry. Over 40 years of specialized effort in the manufacture of clay working machinery has given us the ability to understand and successfully manufacture machines to meet the problems of every manufacturer from the practical operating standpoint.

The clay plant operator's great problem today is the need for equipment to increase production to give more efficiency and to reduce costs.

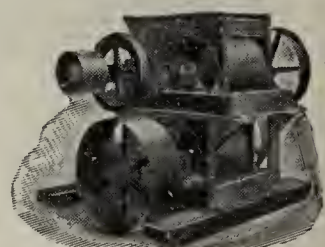
*Perhaps you have a similar problem.
Write us about it. Our Engineering
Department will gladly help you with-
out any obligation whatever.*

C. & G. POTTS & COMPANY
Indianapolis, Indiana

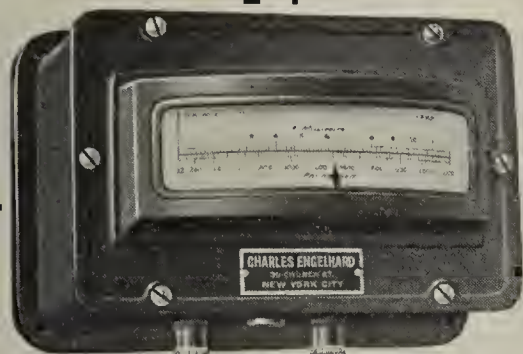
CLAY WORKING
MACHINERY

C & G. POTTS & CO.
INDIANAPOLIS, INDIANA

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CATALOG



STYLE "P" COMPOUND
DISINTEGRATOR



Engelhard Pyrometers

THERE is nothing on which you could spend your money for plant betterment that would so soon pay for itself as an installation of Engelhard Pyrometers. They are valuable at any time but especially now with coal scarce and costly. The control of kiln temperatures saves coal and makes the kilns more productive by shortening the burn. All of which will help those 1923 dividends. And remember,—

*Engelhard Pyrometers are Good Pyrometers
to Standardize on.*

Charles Engelhard, Inc.

30 Church Street

New York City



219

Fordson Tractor Efficiency



APPLIED TO RAIL HAULAGE

FORDSON TRACTOR POWER UNIT—BROOKVILLE LOCOMOTIVE ATTACHMENTS. No mutilation of Fordson. Furnished complete with Fordson ready for service, or merely the locomotive attachments; as desired.

6,000 lbs. weight—1,500 lbs. draw bar pull—4-wheel drive—short wheel base (36½") suitable for sharp curves, switches and frogs. 6-mile working speeds in both forward and reverse—no necessity of turntables or "Y's" at terminals, which are expensive to install and troublesome to operate at the end of each trip.

Will solve your haulage problem and reduce costs to a minimum. Costs only while in actual service. We have made a specialty of applying the Ford power unit to rail haulage purposes during the past four years, in some instances reducing haulage costs as much as 40% over mule or heavy equipment. First cost extremely low.

All Gauges 24" to 56½"



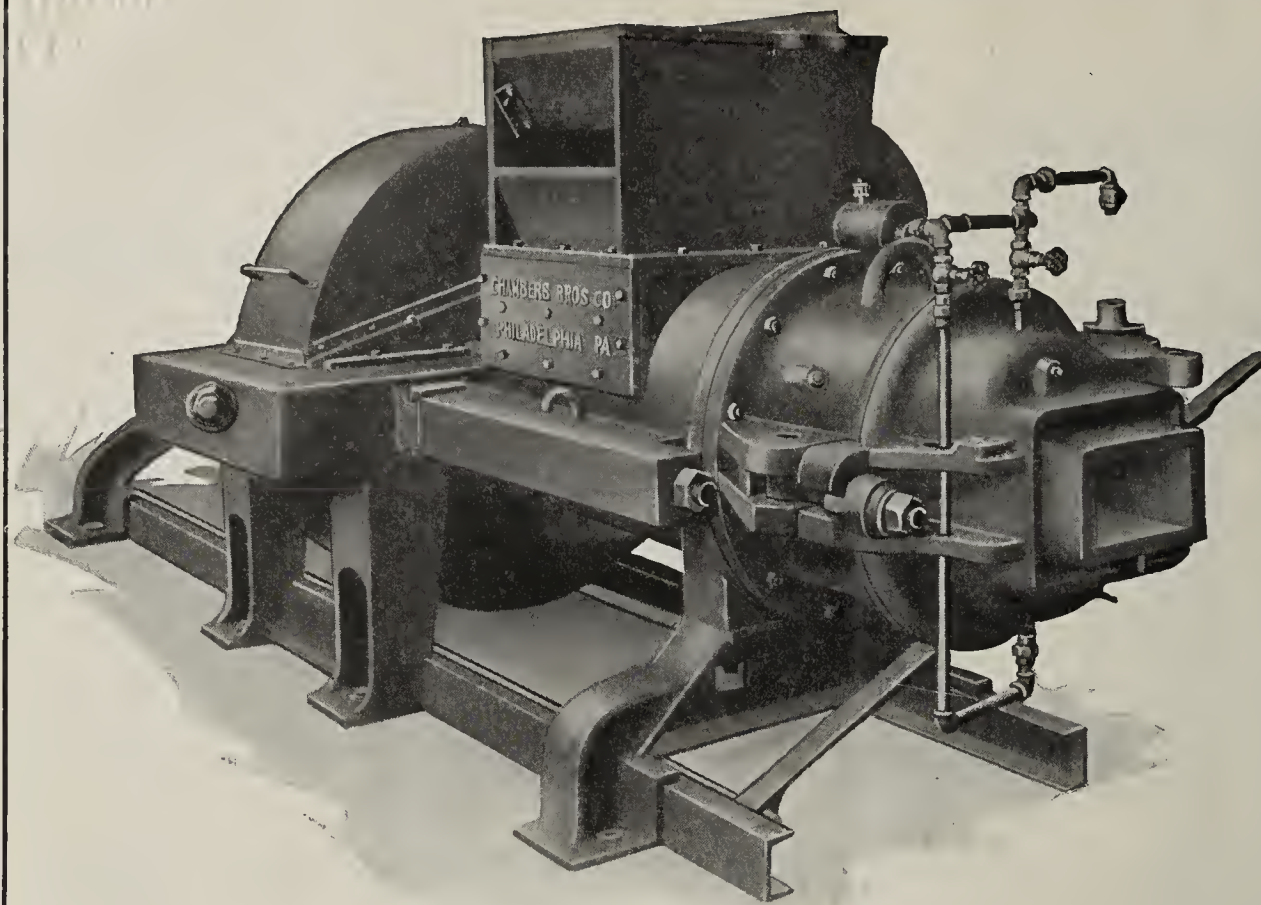
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Brookville Truck & Tractor Company

A. J. ALSDORF CORP., Foreign Distributor,
Chicago, U. S. A.

Brookville, Pa., U. S. A.

A. R. WOOLRIDGE CO., Canadian Distributor
220 King St. W., Toronto, Canada.



Number Two Size
KEYSTONE
AUGER MACHINE

Showing Rotary Feed Hopper and Piping for Two Point Lubricating Die.

Weight of machine exclusive of cutter, about 15,000 pounds. We guarantee satisfaction.

CHAMBERS BROS. CO., Philadelphia, Pa.

**Another
Example of
Real
Economy!**

The illustration is a photograph of our brick conveyor used by Hudson Cement & Supply Co., Washington, D. C.

For loading trucks out of kilns, it formerly took six men one hour to handle and load 2,000 brick. With 24 feet of roller carrier four men do the work in just half the time.

In conveying the brick out to storage piles, the same big saving in both time and labor was accomplished.



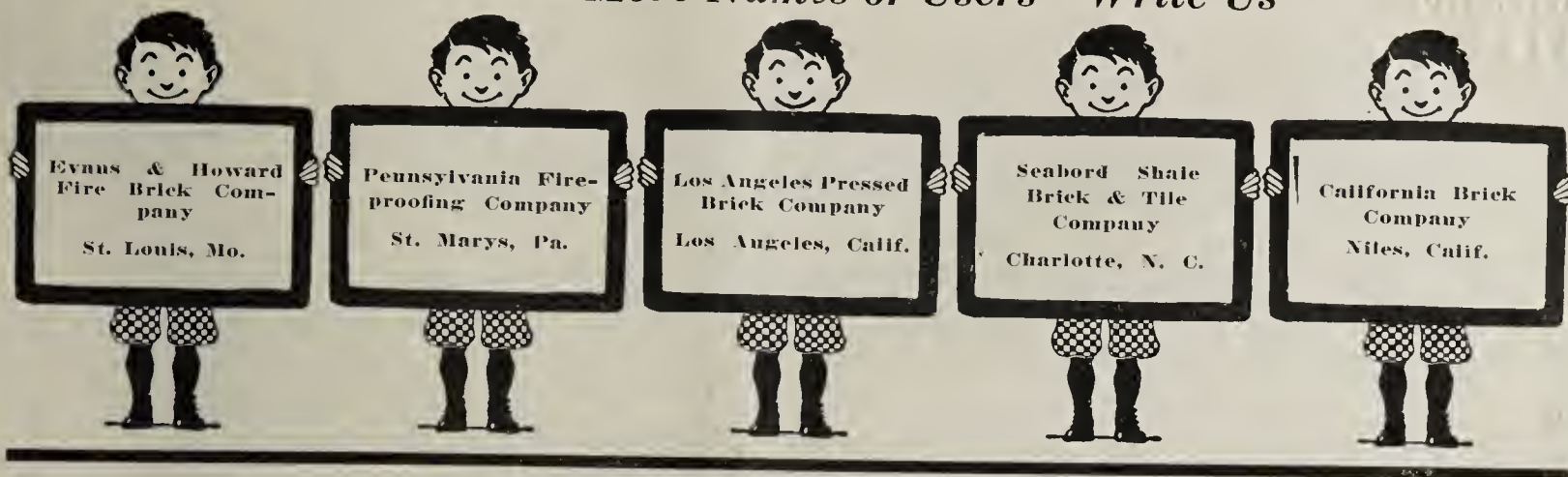
Mathews Gravity Brick Conveyor Used by Hudson Cement and Supply Co., Washington, D. C.

MATHEWS GRAVITY CARRIER COMPANY

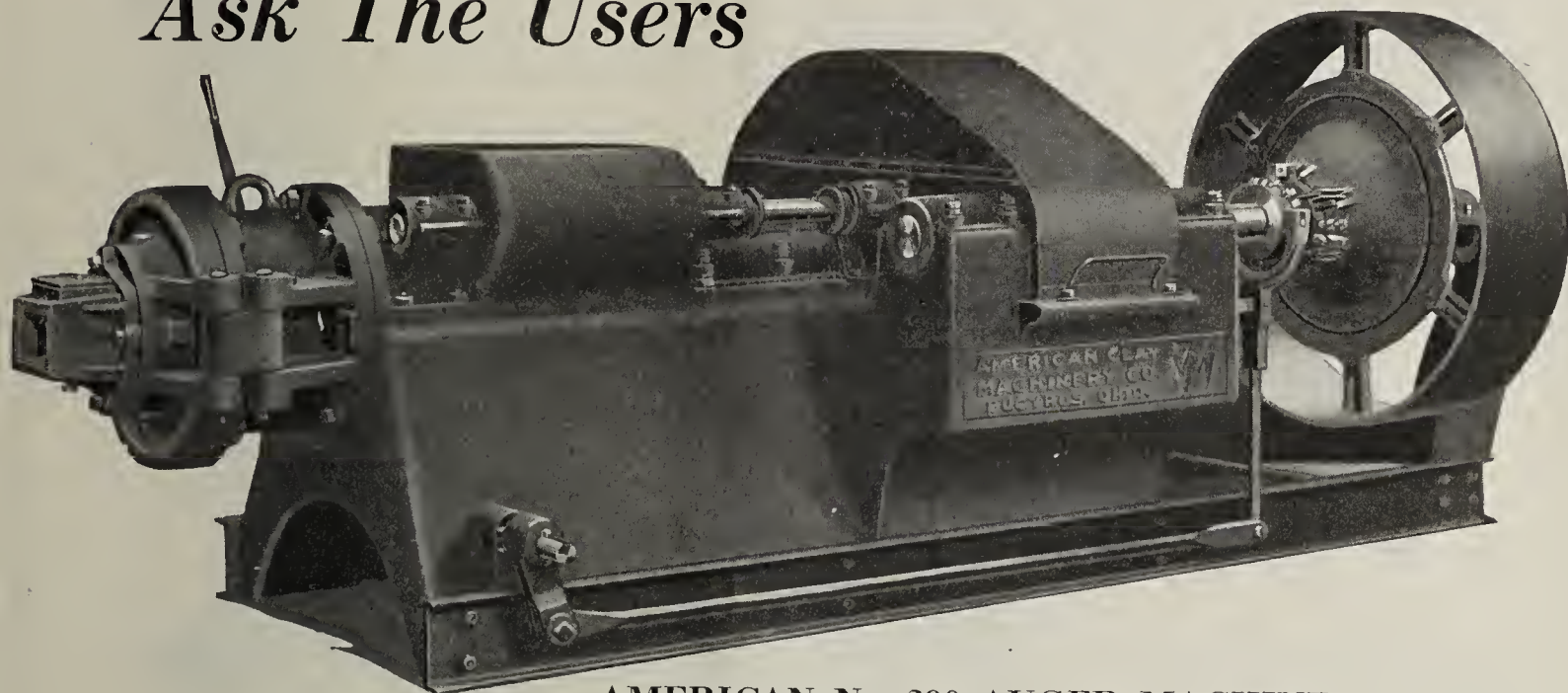
Branch Factories: Port Hope, Ont., London, Eng. 108 Tenth St., ELLWOOD CITY, PENN.

MATHEWS
SPEED ECONOMY
GRAVITY ROLLER CONVEYER

If You Want More Names of Users—Write Us



Ask The Users



AMERICAN No. 290 AUGER MACHINE

We build the American No. 290 Auger Machine for service. The user will tell you what it is doing in operation.

We can furnish description in detail. We can furnish a list of many users but the day in and day out production and action are things upon which the user can best advise you

and we are willing that the user should do it. Here are a few users. "And there are others."

The American No. 290 has pleased and profited many and if you have a demand for as much product as it will make you will be interested in its economy, excellence, faithfulness and productive capacity. Write about this or any machinery need.

THE HADFIELD-PENFIELD STEEL CO., Bucyrus, Ohio

Builders of the American Line of "Built Right Run Right" Clay Working Machinery

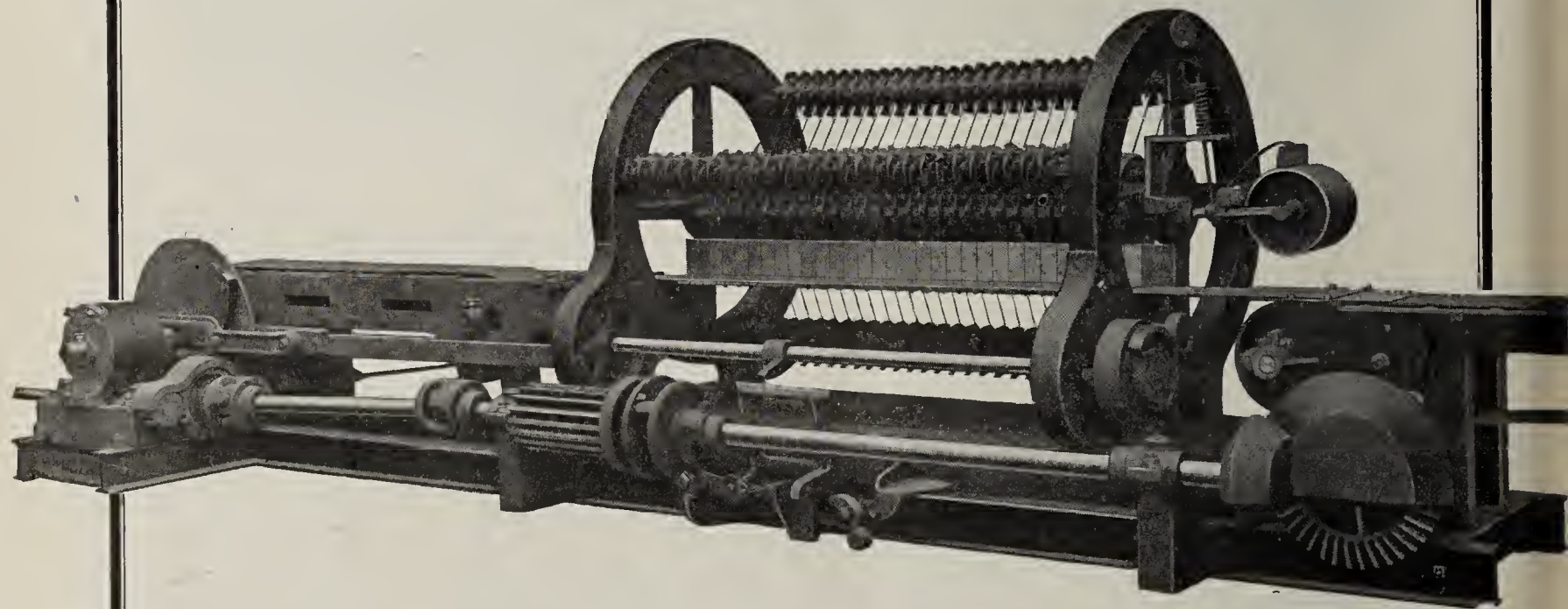


If You Want to Know About The No. 290—Write Them.

Thirty-four (34) Freese Automatic Cutters Have Been in Operation Over 15 Years

24 over 16 years 19 over 17 years
12 over 18 years 11 over 19 years
6 over 20 years

The simplicity of design, with very few wearing parts; the renewable features, with all wearing parts inexpensively renewable; and the substantial construction of the Freese Automatic Cutter enable it to give the long-time service that means real economy.



FREESE ROTATING AUTOMATIC CUTTER

E. M. FREESE *and* COMPANY

GALION, OHIO



220-221

————— *Dependable Machinery of Proven Efficiency* —————

The Justice Radiated Heat Dryer

(Patented)

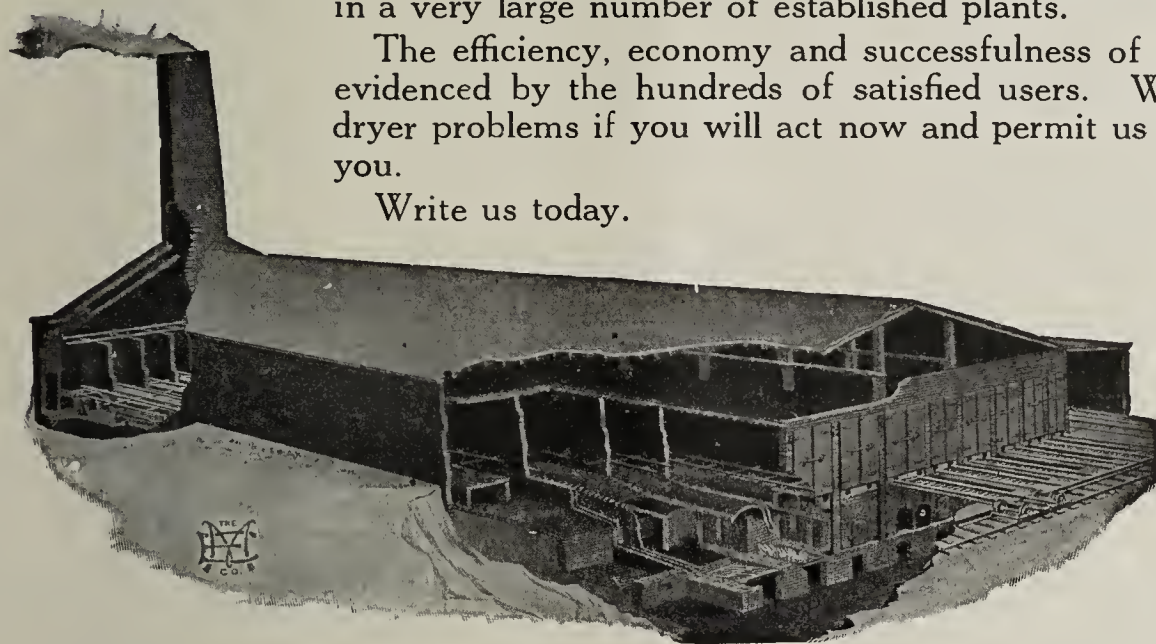
THE Justice Radiated Heat Dryer is the only one worth while on the market today. It is a progressive dryer for Progressive Clay Workers.

The Justice Dryer will dry all your ware all the time for less fuel, less labor and less cost for upkeep than any other dryer.

Let us show you how a real economical dryer will make money for you as against the usually defective and inefficient dryer as found in a very large number of established plants.

The efficiency, economy and successfulness of Justice Dryers are evidenced by the hundreds of satisfied users. We will solve your dryer problems if you will act now and permit us to co-operate with you.

Write us today.



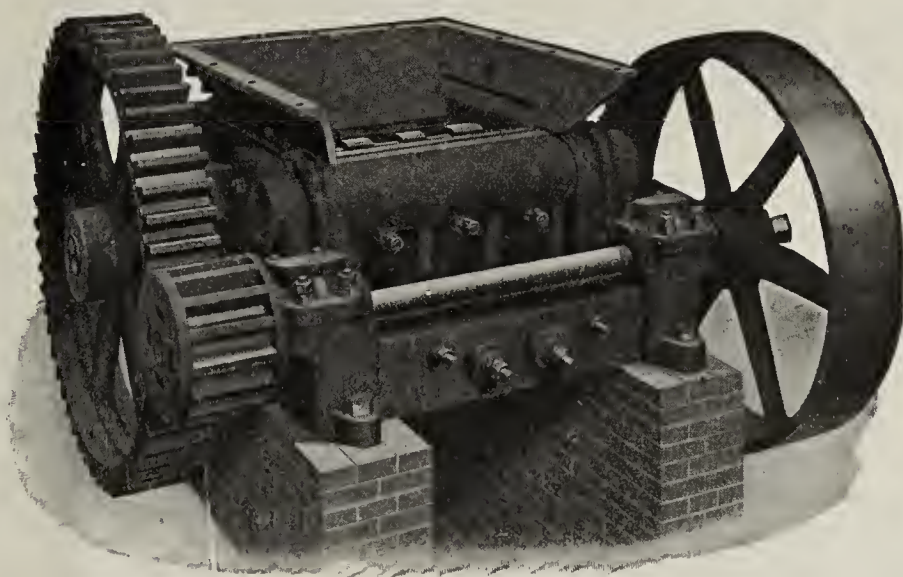
The Meco Single Roll Rock and Shale Crusher

Crush your Shale and Clays to proper size on the Meco Single Roll Rock and Shale Crusher before they enter the dry pans for final grinding.

These crushers are the lowest in price of any on the market when based on weight and capacity.

Each frame is cast in one solid piece and the larger sizes have bronze bearings. They increase dry pan capacity and reduce dry pan repairs.

Arrange now to install your modern crushing, conveying and feeding outfit, and consult us about your requirements. Our engineers will help you design the installation—our experience will be helpful to you.



THE MANUFACTURERS EQUIPMENT CO.
Dayton, Ohio, U. S. A.

Classified Advertisements

Classified advertisements are inserted at the following rates: First insertion, eight cents per word, the captions "For Sale," "Wanted," and address, to be counted as a part of the ad. Additional insertions, six cents per word per insertion. No advertisement inserted for less than \$1.00 per insertion. Cash must accompany all orders to insure insertion.

WANTED—HELP

WANTED—Good, capable inside foreman for brick and tile plant. The Alliance Brick Co., Alliance, Ohio. 12-2

WANTED—Experienced fire brick salesman for Eastern States. Graduate ceramic engineer preferred. State experience and salary required. Address: 11-2ES, care of "Brick and Clay Record." 11-2-1

WANTED—First-class fire brick salesman with good production record and satisfactory reference. Excellent opportunity with good going Pennsylvania concern. Man with \$5,000 to \$10,000 to invest preferred. Address: 11-XC, care of "Brick and Clay Record." 11TF

WANTED—First-class fire brick salesman with good production record and satisfactory reference. Excellent opportunity with good going Pennsylvania concern. Address: 11-Salesman, care of "Brick and Clay Record." 11TF

WANTED—POSITIONS

WANTED—POSITION as a plant superintendent. Ten years' experience as a superintendent manufacturing face brick and tile. Production record good. Technical education. Address: 12-SC, care of "Brick and Clay Record." 12-2

WANTED POSITION—Man 38, 20 years' experience in clay plants, an A1 burner on round down-draft, and a good mechanic. Address: 10-2MBN, care of "Brick and Clay Record." 10-2TF

WANTED POSITION—As superintendent of brick plant by practical man who understands the making of high-grade face brick, rough texture brick and building brick. Address: 11-HC, care of "Brick and Clay Record." 11TF

THORO CLAY WORKER wants position with strong company. Best possible references. Address: 11-2LSB, care of "Brick and Clay Record." 11-2-1P

WANTED POSITION as manager or superintendent by a practical man, who has had experience in rebuilding plants, as well as superintending the manufacture of all kinds of clay products. Address: 11-2RTP, care of "Brick and Clay Record." 11-2-4

SITUATION WANTED—

TRAFFIC MANAGER or ASSISTANT 31 years old, married, good education and training. Has traveled extensively. 12 years' railroad experience as well as with refinery. Desirous of becoming connected with live firm in the building industry. Will sacrifice salary for future prospects. Chicago or suburbs preferable. Address: 6-TM, care of "Brick and Clay Record." 6-TF

WANTED—POSITION as manager or superintendent of brick or hollow ware plant by practical man of many years of practical experience in managing different plants, all with the very best of success. Also am an A No. 1 burner. Best of references furnished. Address: 12-KL, care of "Brick and Clay Record." 12-2

MISCELLANEOUS

AMERICAN REFRACTORIES COMPANY

Manufacturers of Highest Grade

Silica, Magnesite, Chrome and Fire Clay Brick

ARCO and ARCOFRAX Super-Refractories

"AA" Austrian Dead Burned Magnesite

Eastern Sales Office	General Sales Office	Western Sales Office
120 Broadway	315 Union Arcade	208 So. La Salle St.
New York, N. Y.	Pittsburgh, Pa.	Chicago, Ill.

WANTED—EQUIPMENT

WANTED—Used or second-hand dryer cars, soft mud rack type, also stiff mud single, double and triple deck pattern. State quantity, condition and best price. Address: 12-DB, care of "Brick and Clay Record." 12-1

WANTED—Used, heavy duty steam shovel in good repair, with 40-foot beam and 2 or 2½-yard dipper. State kind of work has been doing, how long used, where can be inspected, price, etc. Address W. L. Woods, 607 West 66th St., Chicago. 12-1

WE ARE IN THE MARKET for a second-hand 9 ft. Stevenson Dry Pan in first class condition. Give full description, age of machine, time operated and where can be inspected. Address: 11-2FD, care of "Brick and Clay Record." 11-2-1

WANTED—Several eighteen-inch conveyor belts with troughing pulleys, take up and driving pulleys. State what you have to offer, giving full description of condition, location and lowest price spot cash. Roper-Strauss-Ferst Co., Birmingham, Alabama. 11-3

WANTED TO BUY good second-hand 9 ft. dry pan. Must be in A-1 condition. Address: 11-2Pan, care of "Brick and Clay Record." 11-2-3

WANTED

One 250-300 H. P. slide valve throttling governor stationary engine, side crank, complete, with fly wheel not over 10 ft. diameter, 100 pounds steam pressure, not over 120 RPM.

Either new or second hand in good condition will be considered.

In quoting, please furnish cut or blueprint or complete description, stating where this engine may be inspected. Do not quote on Corliss or 4 valve type. Address: 12-VM, care of "Brick and Clay Record." 12-1

WANTED—PLANTS

WANTED—Brick or tile plant on easy terms. Address: 12-RX, care of "Brick and Clay Record." 12-3P

WANTED TO PURCHASE 1/3 or 1/2 interest in a paying stiff-mud plant and manage same. South of Mason-Dixie line. Address: 11-South, care of "Brick and Clay Record." 11-4

FOR SALE—PLANTS

FOR SALE—High grade fire brick, building brick and drain tile proposition, in middle east. Bargain for quick sale. Address 12-HF, care of "Brick and Clay Record." 12-1

FOR SALE—The Schroeder Brick and Lime Manufacturing Plant. Established 1872. Worth investigating. Selling to close up estate. H. C. Schroeder, Administrator, Shakopee, Minn. 12-3

SALE OR LEASE

Forty thousand capacity dry press brick plant, located in Fort Worth, Texas. Write Cobb Brick Company. 12-3P

SELL OR LEASE: 220 Acres, Nos. 3, 4, 5 and 6 veins clay. Two veins coal; clay grinding plant. Earl D. Mender, Nelsonville, Ohio. 11-2-2P

FOR SALE—Three kiln tile plant southeastern Iowa. Electrically driven. Sell or trade for farm. Address: 11-2J, care of "Brick and Clay Record." 11-2TFX

HIGH GRADE FIRE AND PLASTIC CLAY FOR SALE

Two hundred acres, situated on main line Baltimore and Ohio Railroad, four miles east of Grafton, West Virginia. For particulars communicate with Fred O. Blue, Charleston, West Virginia. 11-2-3P

FOR SALE—High grade shale brick plant, located on the two trunk lines in the East. Favorable rates to Washington, Baltimore, Richmond, Va., Philadelphia and New York. A good local market. Capacity, 35,000 per day. Reasonable terms. Address: 8-BP, care of "Brick and Clay Record." 8TF

ATTENTION, CLAY PRODUCTS MANUFACTURERS

Start plant in Birmingham. Best industrial city South. All plants running full time. We have for sale tract which carries fire clay, shale and coal to run plant for many years. Two railroads thru property. No freight on raw material and fuel. Think of saving. Half mile city limits. Write for particulars. Vaughn Realty Co., Birmingham, Alabama. 12-1P

FOR SALE

Well equipped stiff-mud brick plant in the South. Capacity 40,000 per day. Owner has other business requiring his time. A bargain for someone. Address: 7-J, care of "Brick and Clay Record." 7-2

Classified Advertisements

RECEIVER'S SALE OF FIRE CLAY PRODUCTS COMPANY

Notice is hereby given that the undersigned as receiver, will, at 10 o'clock a. m. on Monday, December 18th, 1922, offer for sale the entire plant of the Loogootee Fire Clay Products Company. It is situated adjoining the City of Loogootee, in Martin County, Indiana, and consists of real estate, machinery and equipment, constituting a first class fire clay products plant, used in making brick, tile and other fire clay products. This property should prove an attractive investment. Full information furnished upon request.

LOUIS C. BROOKS, Receiver
Loogootee, Indiana. 12-1

FOR SALE—USED MACHINERY

FOR SALE—Steam Shovel Bargain. Thew revolving shovel, suitable for clay bank work. Low price—easy terms. Jas. S. Braden, 30 Church St., New York, N. Y. 11-2-3

FOR SALE—One Phillips & McLaren 8 ft. grinding pan. Discarded to place 10 ft. pan. Price \$300.00. Inquire at Altoona Brick Company, Altoona, Pa. 11-2-2

FOR SALE—Drain tile and building block planer. Four 13,000 4-inch capacity kilns. Buildings of block construction and new. All machinery in first class shape and ready to operate. Located in small town on good railroad. Demand exceeds capacity. Owner not able to operate longer on account of age. Address: 11-2C, care of "Brick and Clay Record." 11-2-3

FOR SALE

One ten-foot exhaust fan housing and three different size pulleys. Two gas engines, 4 and 6 horse power, one centrifugal pump, 5-inch suction. This machinery is practically new. Also one Brewer rotary automatic brick cutter (side cut) never been used. Dallas County Clay Co., Woodward, Iowa. 11-2-2

FOR SALE—One new steel leg bucket elevator, 12 in. by 7 in. buckets, 32 ft. centers; one Freese C-20 cutter. Address 12-ELV, care of "Brick and Clay Record." 12-TF

FOR SALE—One Stevenson nine-foot dry pan. Good as new. Address Carlton Clay Products Company, Franklin, Pennsylvania, Box 591. 11-2-3P

FOR SALE—One E. M. Freese single geared Brick machine, capacity 5,000 brick per hour, factory rebuilt. Address: 11-RB, care of "Brick and Clay Record." 11TF

FOR SALE—Bensing Cutter No. IAT plain reel for cutting hollow tile. Good condition. Some extra repair parts. Address: 10-3Cutter, care of Brick and Clay Record. 10-3TF

FOR SALE—One two-mold Fernholtz dry press, complete, with extra ornamental molds, dies, elevator, mixer, line shafting, pulleys, etc. Complete equipment for 10,000 capacity plant. Address Superior Press Brick Co., 3190 S. Kingshighway, St. Louis, Mo.

FINE LOT OF MACHINERY AND SUPPLIES

One Heavy Duty Raymond 9 ft. Dry Pan, fine order; one Heavy Duty Model C American Clay Dry Press, little used; 1 extra Heavy Duty Pug Mill; one Hoisting Machine for building or hauling from clay pit; 1800 flat black 12 gauge 34 inch by 10 inch Pallets, little used; 1000 16 gauge rolled edge Pallets for car use; 500 galv. steel 12 gauge 34 inch by 10 inch. C. H. Horton Company, Painesville, Ohio. 12-TF

STEAM SHOVELS

Locomotive Cranes, Cars, Draglines, Crushers and Miscellaneous clay plant and pit equipment.

At the Right Price

F. MAYER,
737 Monadnock Bldg.,
Chicago, Ill. 12-2

FOR SALE—One Chambers large size end cut brick machine; one new Steele & Sons brick machine, latest model, never used. No. 0 Thew shovel, in good condition. One crude-oil burning equipment. Lot of 6 wooden brick moulds; one 18-inch 4-ply canvas conveyor, 140 feet long; 5 sets 18-inch spoke pattern chilled car wheels. Address: 9-GFE, care of "Brick and Clay Record." 9-TF

RELAYING RAILS TRACK ACCESSORIES

A large stock of good relayers in weights from 20 lb. to 90 lb. per yard for shipment as quickly as cars are placed for loading. Can ship complete with necessary splice bars, angle bars, bolts and spikes. Any quantity—one ton or a hundred.

STANDARD RAIL & STEEL CO.,
217 Cass Ave., St. Louis, Mo.
Mo. 10-2TF

FOR SALE—Complete pipe and rack equipment for five-track dryer; will dry 20 to 30 thousand brick per day according to what your clay will stand. Delivery at once. Wm. Graham Co., Bordentown, N. J. 12-3

FOR SALE—Three 40 H. P. 40 degrec General Electric Motors, type KI, 60 cycles, 440 volts, 3 phases, speed 690 RPM full load. These motors are in excellent condition, practically new, and are for sale, because plant rearrangement requires one large motor. Sacramento Brick Co., 1400 Front St., Sacramento, Calif. 12-2

FOR SALE—600 Double Deck Steel Dryer Cars, 8 feet long, 41 in. wide overall, 31 in. Track Gauge. Address 11-A, care of "Brick and Clay Record." 11-1

FOR SALE OR LEASE

Brick yard site on B. & O. Railroad between Dawson and Layton, Fayette County, Pa. Plastic Clay, Flint Clay, Silica Rock and Coal on the property. Suitable for fire, silica, paving or building brick. Address: George B. Freed, Agent, Connellsville, Pa. 8-2TF

Rails and Cars For Sale

Also have a large stock of clay and coal cars on hand, and are well equipped to manufacture same. Also have a large stock of rails, both new and relaying, of all sections, splkes, bolts, frogs and switches. M. K. Frank, Frick Building, Pittsburgh, Pa. 10TF

EQUIPMENT FOR SALE

1 American Clay Machinery Company 4 mold dry press brick machine with mold box for 9-inch fire brick, complete with 22-inch clutch and pulley. 9 ft. 6 in. wide, 8 ft. long, 8 ft. 6 in. high. No. 701. Weight 32,000 pounds. Used two days only. Practically new.

1 American Clay Machinery Company No. 247 bevel geared pushing type clay feeder, right hand drive. 14 ft. 10 in. long, 6 ft. 6 in. wide. Weight 7,250 pounds. Used two days only. Practically new.

1 Proctor steel construction tunnel track dryer 66 ft. long, 23 ft. wide, 5 ft. 8 in. high. To hold 44 cars 5 ft. 8½ in. long, 40 in. wide, 26-inch gauge. Capacity of each car 576 pieces 9x4x2½ in. brick. Total capacity of dryer 25,344 pieces each 24 hours. Apparatus complete, including 50 trucks and 2 transfer trucks. Never used nor assembled. Absolutely brand new.

1 Sullivan machinery 4 ft. x 10 ft. new air receiver. 34 unpunched tank steel plates 280 in. x 96 in. x 9/16 in.

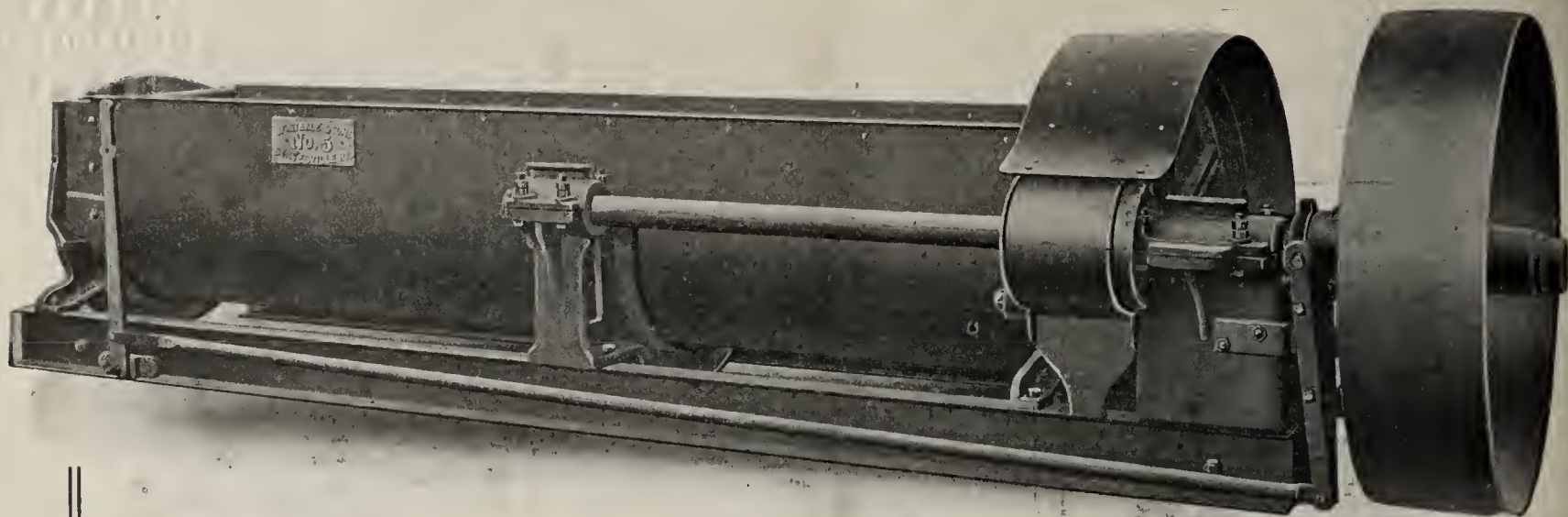
Offered at very attractive prices.

KENNEDY REFRACTORIES COMPANY,
Tiffin, Ohio.

See List of Books for

Clay Products Manufacturers

Page 904



Steele's No. 5-A Pug Mill

Capacity 6,000 to 15,000 brick per hour. Built for large capacity and heavy work. Equipped with 7-inch steel beams. Powerfully geared, the master gear being 49 inches in diameter. The barrel is of steel, 30 inches in diameter, 12 feet long.

STEELE machinery is built for speed, durability and economy. It is heavily constructed to handle the most severe work, and contains many new and practical features.

Our other equipment includes:

SIDE CUTTERS
BRICK MACHINES
DUMP CARS
DISINTEGRATORS

PUG MILLS
END CUTTERS
LIFT CARS
CRUSHERS

HOLLOW WARE MACHINES
HOISTS
FEEDERS

and in fact all clay plant machinery and equipment

Write us regarding your requirements.

J. C. STEELE & SONS,
Statesville, No. Carolina

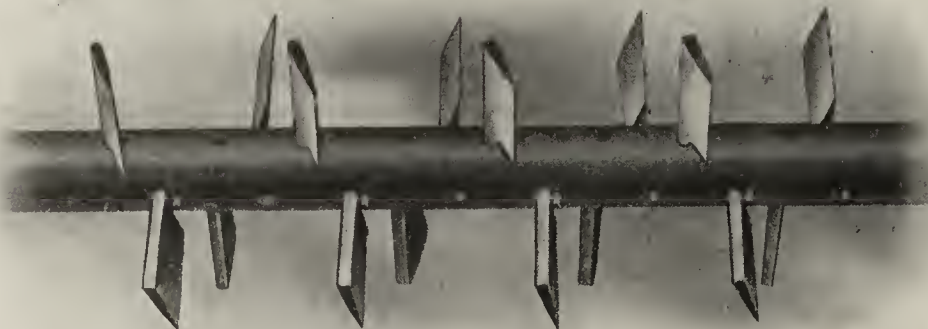


Western Representative:

Geo. H. Smith, 3309 E. 37th St., Kans. City, Mo.

Northern Agents:

The Manufacturers Equipment Co., Dayton, O.

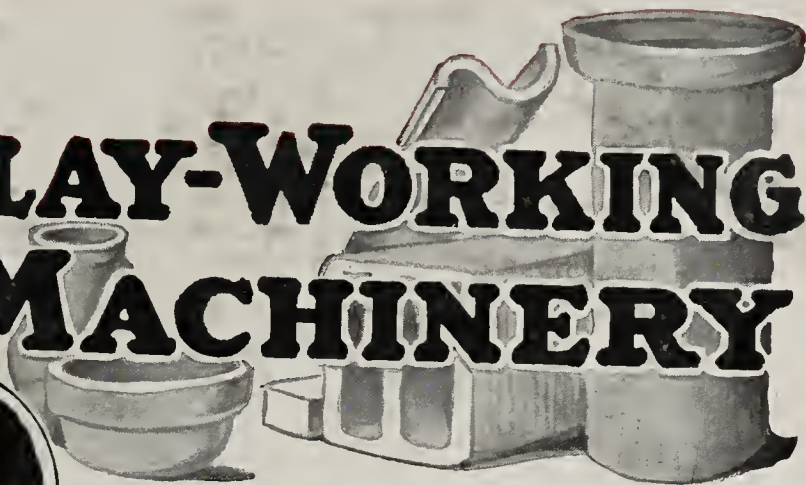


Detail of 6" pug mill shaft showing inserted drop-forged, adjustable steel knives. Troubles eliminated, because knives will bend instead of breaking, if any thing falls into machine.

PLYMOUTH

Fate

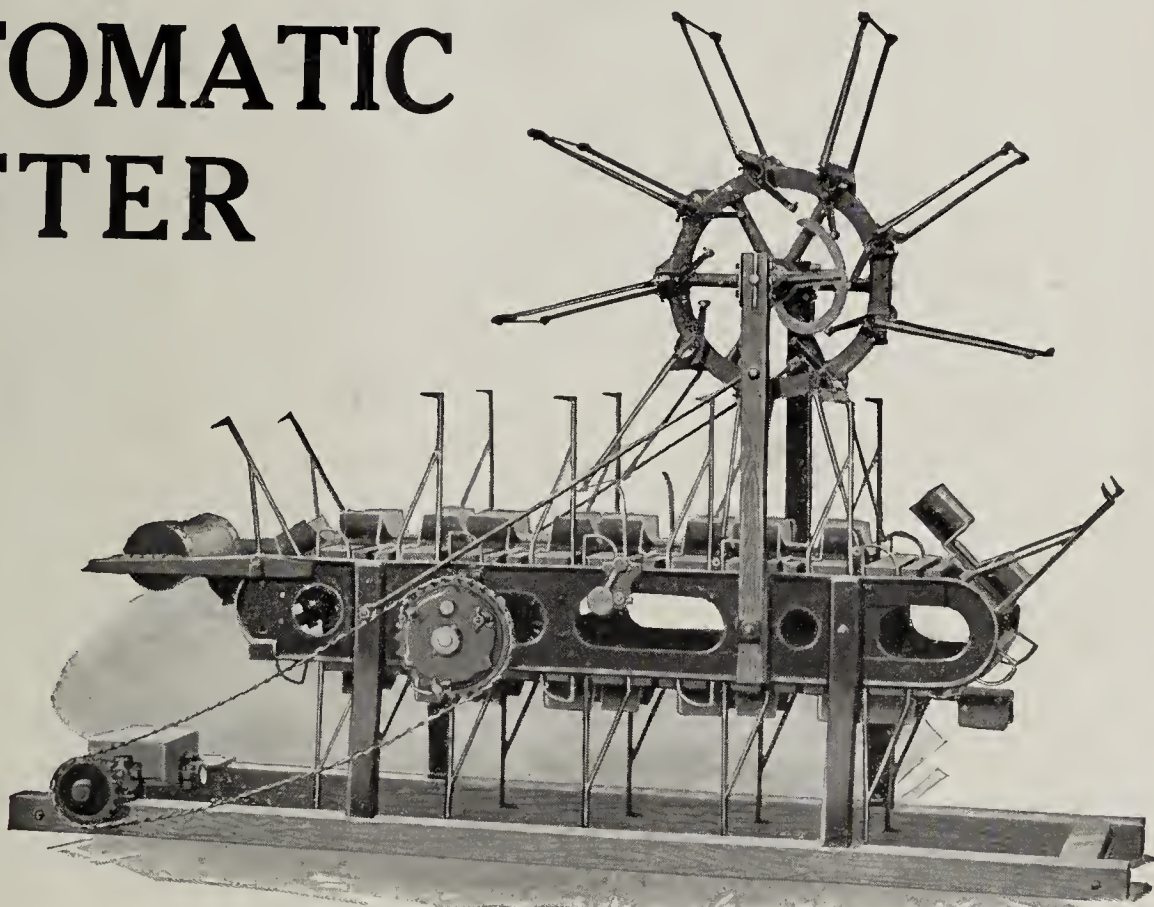
**CLAY-WORKING
MACHINERY**



Honor built for the ages

AUTOMATIC CUTTER

TYPE
2 - AT

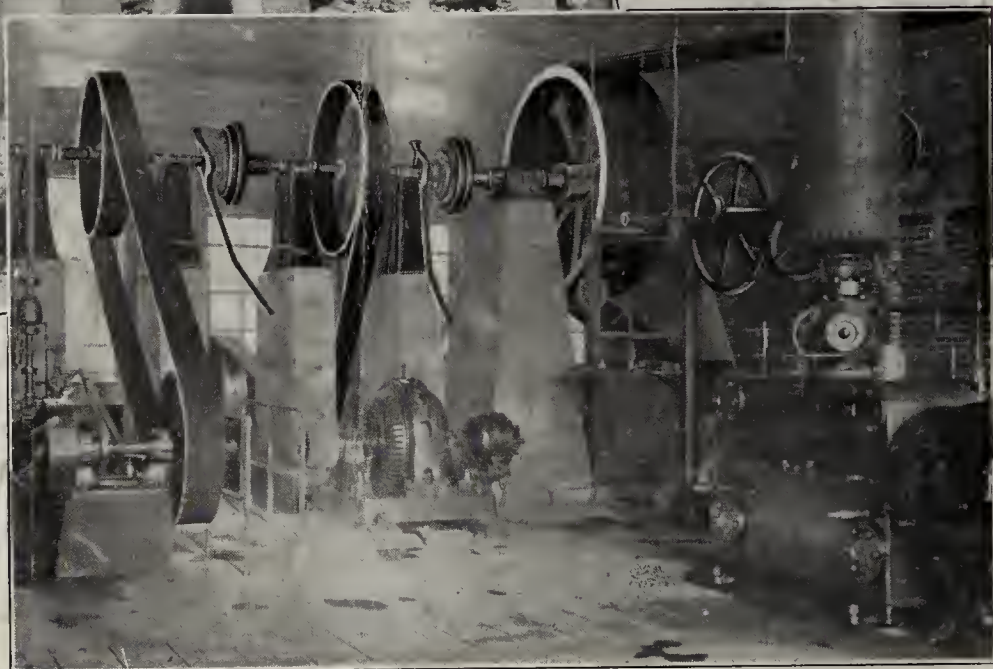
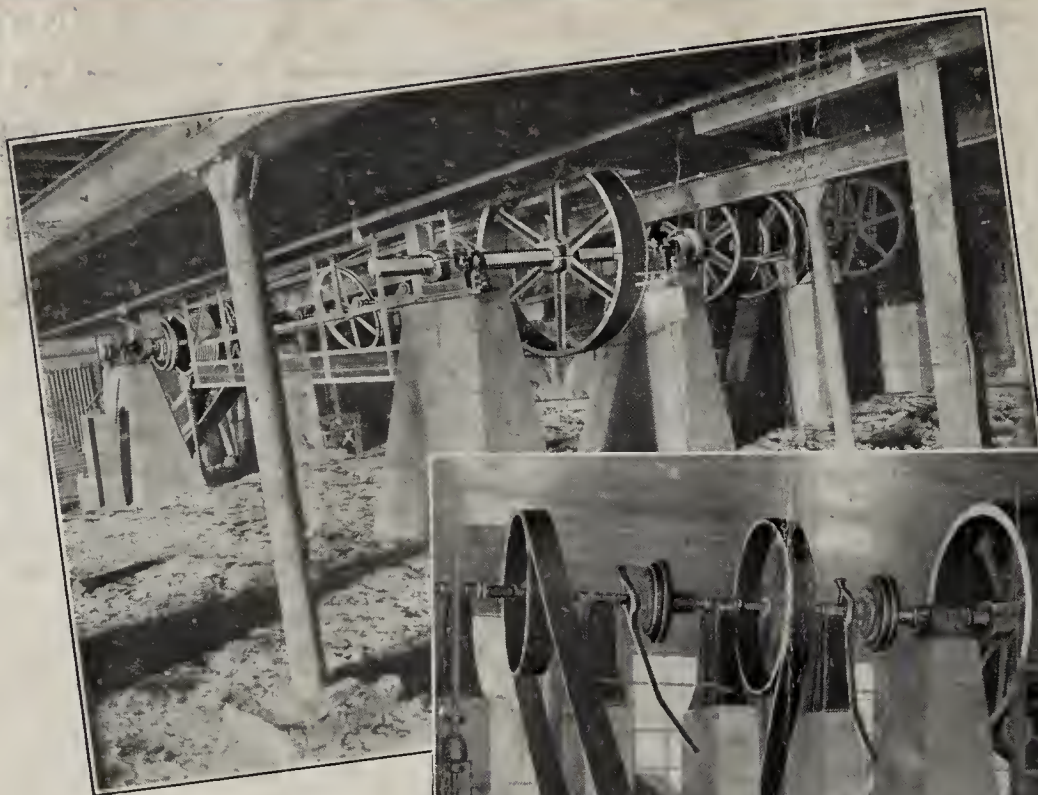


For Cutting 3 to 8 Inch Drain Tile

This cutter may be supplied with double stream scoops for 3 and 4-inch drain tile. Made also with flat platens for building tile. Cuts column of clay 10 inches high and $11\frac{1}{2}$ inches wide. May be built 2 inches wider than regular, thus cutting $13\frac{1}{2}$ inches wide. Regular length cut is 13 inches, but built for any length from 10 to 18 inches.

We invite your inquiry on Cutters & Clay Machinery

THE FATE-ROOT-HEATH CO., PLYMOUTH, OHIO



National Sewer Pipe Company's Plant is Dodge Equipped Throughout

In 1913 this company decided on Dodge power transmission equipment after a careful investigation extending over a period of two years.

Under date of November 4, 1922, the General Manager says: "We have run practically continuously for nine years and the equipment has given satisfactory service."

This installation consists of a 550 H. P. main engine rope drive and four special rope drives taking the power from the main shaft to the wet pans,

pulverizers, etc. These drives are controlled by Dodge split friction clutches and all pulleys, pillow blocks and other appliances were furnished by Dodge.

The satisfactory experience of this representative concern is typical of that of many others in the clay products field. Dodge equipment is backed by over forty years experience in the design and manufacture of everything for the mechanical distribution of power.

Write today for full particulars and rope drive questionnaire

DODGE

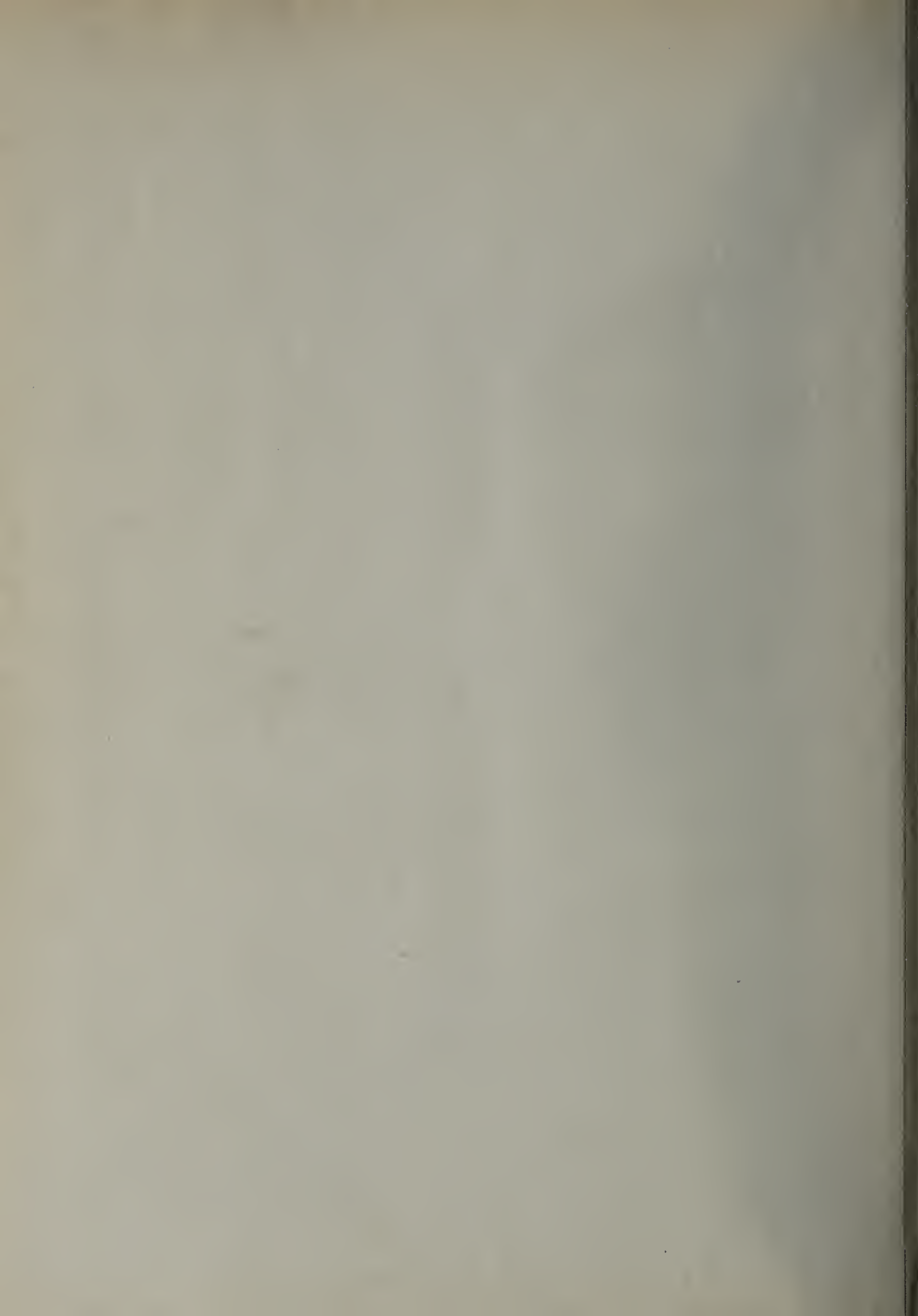
Power Transmission Machinery

Dodge Sales and Engineering Company

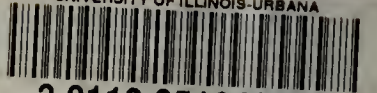
Mishawaka, Indiana, and Oneida, New York

Canadian Manufacturers, Dodge Mfg. Co. of Canada, Ltd., Toronto and Montreal

Philadelphia Cincinnati New York Chicago St. Louis Boston Atlanta Pittsburgh Minneapolis Dallas Providence Seattle Newark



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